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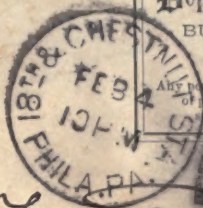
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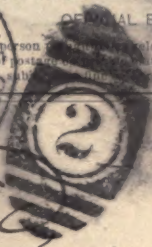
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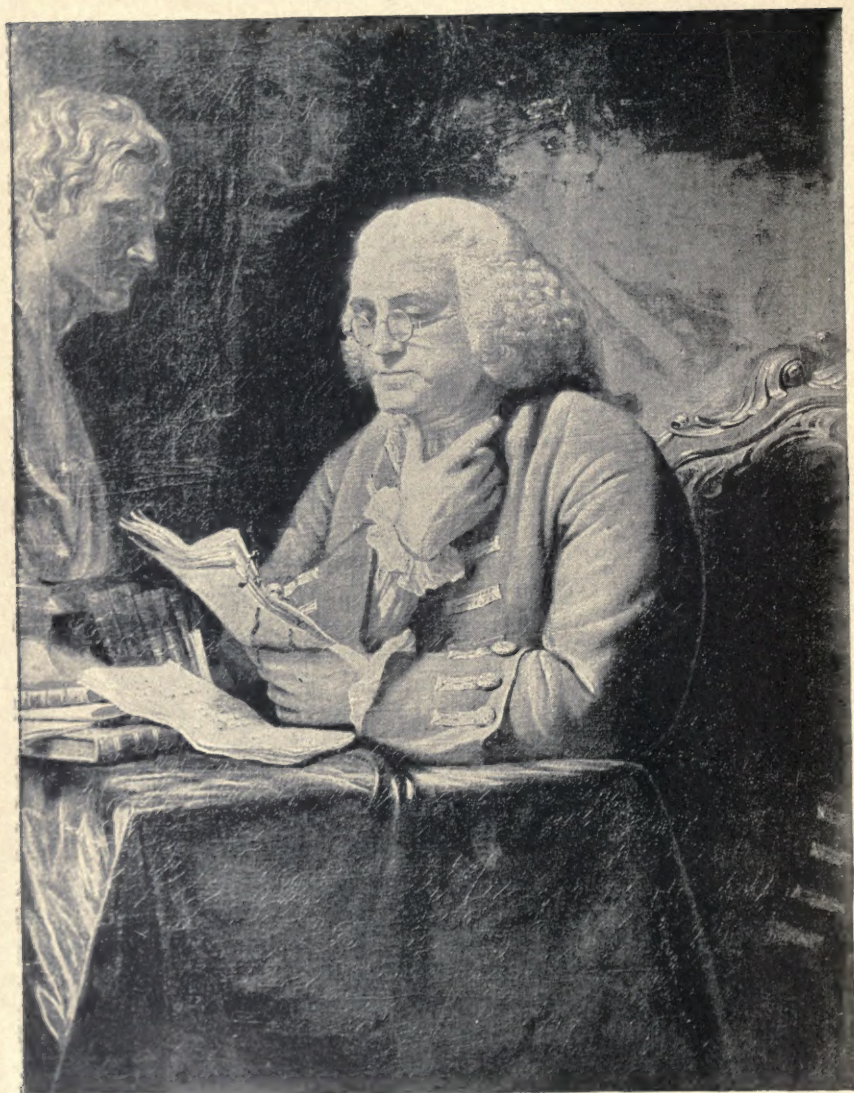






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BENJAMIN FRANKLIN.

1706-1791.

BUREAU OF EDUCATION
CIRCULAR OF INFORMATION NO. 2, 1892.

BENJAMIN FRANKLIN

AND

THE UNIVERSITY OF PENNSYLVANIA.

EDITED BY

FRANCIS NEWTON THORPE, Ph. D.,
Professor of American Constitutional History in the
University of Pennsylvania.

WASHINGTON:
GOVERNMENT PRINTING OFFICE.
1893.

DEPARTMENT OF THE INTERIOR,

BUREAU OF EDUCATION,

Washington, D. C., April 21, 1893.

SIR: I have the honor to present herewith for publication a circular of information entitled "Benjamin Franklin and the University of Pennsylvania." Some years since this Bureau offered a similar circular on "Thomas Jefferson and the University of Virginia," which was printed in an edition of 20,000 copies, all of which have been distributed. The demand still continues for this circular and it is hoped that it may be reprinted at no distant date. The present circular of information, it is expected, will be of equal interest to the country. While Thomas Jefferson, with that breadth of statesmanship which characterized all of his labors, kept unceasingly before his view the importance of popular education to reinforce and make effective the operations of the principle of local self-government, on the other hand Dr. Franklin, himself a noteworthy example of a self-educated man, kept in view the importance of education as the foundation of thrift and social development. These two men seem to have furnished more than any other two men the guiding principles which have prevailed in our civilization, political and social.

The circular here mentioned on Thomas Jefferson and the University of Virginia has made widely known the wonderful insight of the great Virginian into the best modes of organizing popular education. To him is due the organization of the University of Virginia, which is more and more copied or approached in the regulations and practical details of colleges and universities North and South. The author of that circular, Prof. H. B. Adams, has treated his theme in such a way as to throw great light upon the early history and growth of what we fondly style American ideas. Our local self-government jealously guards itself against the danger from centralized power. The assumption on the part of the General Government of any functions which can be better performed by the local authorities is regarded as mischievous by the vast majority of thinking people in our country. But whatever goes to the education and enlightenment of the citizens in their several localities goes for the increase of local directive power. The only kind of help which is always good and useful is that which helps an individual or a community to help itself. Jefferson saw this truth, and he saw its relation to popular education as a necessary concomitant to local self-government.

Benjamin Franklin stands somewhat in contrast to Jefferson in the fact that he looks more to the social welfare than to the political function of the people. His most pronounced idea is that of thrift. He wishes to have it impressed on each man or woman or child that industry and economy are prime sources of power. But he is in agreement with Thomas Jefferson as to the importance of an elementary education to prepare the citizen for intelligent application of the lessons of industry and thrift.

The center from which Franklin's practical influence in education extends is Philadelphia. Connected, as he was, for many years with the management of what is now the University of Pennsylvania, that institution is in some sense a development of his ideas as to higher education. But his benefactions and his counsel originated many other streams of educational influence.

These lines of educational influence have been carefully investigated by Prof. Francis Newton Thorpe, of the University of Pennsylvania, and his results are now offered for publication. I am confident in the belief that this treatise will be received with the same interest that was accorded to the former circular upon "Jefferson and the University of Virginia." The two principles which have hitherto divided the attention of statesmen and public benefactors, each one contending for the mastery, but each compromising in turn to the other, are these two ideas, represented respectively by Jefferson and Franklin, the idea of the political basis and the idea of the social basis of a free government.

Very respectfully, your obedient servant,

W. T. HARRIS,
Commissioner.

HON. HOKE SMITH,
Secretary of the Interior.

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PREFACE.

Benjamin Franklin is the type of the self-educated man. His philosophy is utilitarian, and his educational notions are stamped by that system. He would define morality, politics, and natural philosophy by a series of experiments in which every member of the human race should participate. His scheme of education provides that all men should follow his example. The influence of Franklin on American education is felt to this day. I have attempted to outline this influence by tracing his own self-education; by presenting his ideas on education as shown in his works; by comparing them with the ideas of the eminent men of his time, Adam Smith, Hume, Priestly, Washington, John Adams, Jefferson, Hamilton, and some of the physiocrats; by describing the educational institutions which he founded—the Library Company of Philadelphia, the American Philosophical Society, and the University of Pennsylvania—and the principal educational institutions founded in Pennsylvania in conformity with his ideas—Franklin and Marshall Collège, the Franklin Institute, Girard College, and the Philadelphia Manual Training Schools. These institutions touch life at every point and represent every important phase of modern education.

This volume is designed to show more particularly Franklin's relations to the University of Pennsylvania, and the history and growth of that institution for a century and a half. Lack of space has prevented a more elaborate account of that relation and of that history. Perhaps no part of the volume is more suggestive than the tables showing the attendance at the University since 1740. It has been attended by persons from one hundred and thirteen States and countries, and the number of annual courses given amount to 66,747. Its alumni are found all over the world. Particularly has the University been of interest to the people of the Southern States who have been, with a slight interruption, its constant patrons. The tables show how in recent years the awakened interest in university life brings matriculates from all parts of the world. The University has thus become the permanent exposition of Franklin's ideas in education, and his name and that of the University are imperishably linked together. He was the first president of the Board of Trustees and was an active member of the Board for nearly half a century. The brief account of Franklin's influence on Adam Smith, on Priestly, and on Hume, and of the educational

ideas held by Washington, Adams, Jefferson, and Hamilton, will suggest to others, I trust, interesting fields of exploration in American educational history.

"The great aim and end of all learning" wrote Franklin in 1749, in his "Proposals Relating to the Education of Youth in Pennsylvania,"¹ "is to serve mankind, one's country, friends and family."

On this broad conception Franklin and his associates founded the University of Pennsylvania. At the close of nearly a century and a half after that conception was formulated, the University of Pennsylvania is organized and administered, its numerous courses of study arranged and its academic life proceeds in substantial conformity with the great aim and end which Franklin proposed. The plan of the founder and his associates comprehended the significant educational movements of modern times and at the same time set forth the classic excellence of conservatism. Language, literature, science pure and applied, ethics, history, government and constitutions, "sound politics," logic, the history of commerce, archæology, law, anatomy, and medicine, the ever-increasing group of studies which "are useful to mankind" distinguish the University of Pennsylvania to-day and enhance the fame of its founder. That group of historical, economic and political studies which includes so large a portion of modern instruction was clearly outlined in the original plan for the University of Pennsylvania, and this institution was the first to organize several special schools whose instruction is particularly useful in such a country as ours.

The unwearied labors of unselfish men, provosts, trustees, and professors, aided by generous friends, for a century and a half have centered in the University of Pennsylvania; but it is during the last twenty years and more particularly during the last decade that the truly university plan of the founder, enlarged by the experience of many attempts towards its realization, has taken concrete form. The recent growth of the University has been phenomenal. It is doubtful if any other institution of learning in America shows such a vigorous growth of parts and such efficient unification of the whole.

A magnificent estate of over 40 acres has been secured on the highlands of Philadelphia overlooking the valley of the Schuylkill, twenty buildings for a great variety of purposes have been erected at a cost of \$1,500,000, and the scope of the University has been enlarged by the foundation of numerous special or technical schools, such as Wharton School of Finance and Economy, the School of Biology, the Veterinary School, the School of American History and Institutions, the School of Hygiene, the School of Architecture, the Graduate School for Women, and the Wistar Institute of Anatomy.

These creations illustrate forcibly the living touch of the University with the world, and these schools are administered to the advantage

¹ See p. 58 *et seq.*

of an ever increasing body of students from all parts of the world. In 1881 there were 972 students in attendance; there are 2,055 in 1892. The teaching force of the University has increased till it bears a greater ratio to the number of students receiving instruction than exists in any other university in America.

The services of Benjamin Franklin to his countrymen are the admiration of the world; but no service done by this American statesman surpasses the service of the great University which he and his associates founded.

Thomas Jefferson, the founder of the University of Virginia, with intimate knowledge of the relative worth of American and European institutions of learning, in 1807, while President of the United States, wrote to Dr. Caspar Wistar, then professor of anatomy in the University of Pennsylvania:

I have a grandson, the son of Mr. Randolph, now about 15 years of age, in whose education I take a lively interest; * * * there are particular branches of science which are not so advantageously taught anywhere else in the United States as in Philadelphia, * * * your Medical School for anatomy, and the able professors * * * give advantages not to be found elsewhere.

It is of great interest to be able to record that eighty-five years later the name of the distinguished anatomist and teacher, Dr. Wistar, is forever associated with the University of Pennsylvania by the generosity of Gen. Isaac J. Wistar, in the foundation and endowment of the Wistar Institute of Anatomy.

To-day, the Medical School with its learned faculties and its four years' course; the Towne Scientific School, with its admirably equipped laboratories; the Biological and Veterinary Schools; and the School of Hygiene; the University Hospital and the Dental School, each adequately equipped with commodious buildings, suggest that were President Jefferson living he might again speak of "advantages" at the University of Pennsylvania, "not to be found elsewhere."

Nor has it been in science alone that the facilities of the University have increased; the entire group of political, historical and economic studies is emphasized in the clearest manner and the several schools organized in that group, like the scientific schools in the University, give special strength to the whole educational unit of the University.

It is the unification of the University and the enormous financial strengthening which it has received during the last ten years that distinguish the administration of the present Provost, Dr. William Pepper, whose wife and children are descendants of Benjamin Franklin and who by a happy destiny has been enabled to give concrete form and living power to the comprehensive plans of the University's great founder. Nor should history be silent concerning the wise generosity of the Board of Trustees, some of whose members have been the guaranty of the material success of many large undertakings in the University.

The editor acknowledges gratefully the zealous coöperation of the various contributors to the volume. Each chapter has the authority of its author. Special acknowledgments are due to the faithful Secretary of the Board of Trustees, Rev. Jesse Y. Burk, to whose intimate knowledge of University affairs a large portion of the value of the book is due. The elaborate statistical table on page 202, involving much research, was prepared by Mr. Clarence S. McIntire, to whom acknowledgments are made.

THE EDITOR.

BENJAMIN FRANKLIN AND THE UNIVERSITY OF PENNSYLVANIA.

CHAPTER I.

FRANKLIN'S SELF-EDUCATION.

A man whose biographer can say of him that he never spoke a word too soon, nor a word too late, nor a word too much, nor failed to speak the right word at the right season, and who filled high public offices and performed their duties with fidelity which has made his public service not only illustrious but of the highest type of its kind, who founded institutions of great public utility, and who also successfully managed his own private affairs, may be expected to have some ideas on education.

Benjamin Franklin tells us that he "was born and bred in poverty and obscurity, from which he emerged to a state of affluence and some degree of reputation in the world, and that he went through life with a considerable share of felicity". He frequently reflected on his worldly prosperity and was happy to record that his family was of homely but goodly stock, of the middle class of ancient England, and that even so distinguished a divine as Cotton Mather made honorable mention of Peter Folger, Franklin's maternal grandfather, as "a godly, learned Englishman."

Franklin was not sent to college, according to his account, because a college education was too expensive; "the mean living many so educated were afterwards able to obtain" was a sufficient proof to Franklin's father that worldly success was not surely to be won after so great an expense.

To understand Franklin's notions of education it is necessary to trace his own. He remembered in his old age how his father "at the table liked to have, as often as he could, some sensible friend or neighbor to converse with, and always took care to start some ingenious or useful topic for discourse, which might tend to improve the minds of his children. By this means he turned our attention to what was good, just, and prudent, in the conduct of life." This insight into Franklin's childhood shows how early in life his mind was impressed

with the paramount importance of things ingenious or useful, and to the end of his life he judged of the value of men's labors by their usefulness to mankind. When it was to be decided at what employment Franklin should be put, his father sought a practical solution of the problem by taking him to walk with him, "and see joiners, bricklayers, turners, braziers, etc., at their work, that he might observe my inclination, and endeavor to fix it on some trade or profession that would keep me on land. It has ever since been a pleasure to me to see good workmen handle their tools; and it has been often useful to me to have learnt so much by it as to be able to do some trifling jobs in the house, when a workman could not readily be got, and to construct little machines for my experiments, while the intention of making the experiment was fresh and warm in my mind."

From a child he was fond of reading, and he tells us that he spent the little money that came into his hands for books. It is natural for a man to insist that the education of the young should be like that which he received himself, and the books which Franklin read in his boyhood remained, in his opinion, the proper books for all children to read. "The Pilgrim's Progress," Burton's "Historical Collections," De Foe's "Essay on Projects," and Dr. Mather's "Essays to do Good" had an influence on some of the principal events of Franklin's life. It may be said that two of these books, "Pilgrim's Progress" and De Foe's "Essay on Projects" are among the most fertile books ever written. In evidence, it may be said, that except the Bible, "Pilgrim's Progress" is more freely read throughout the world than any other book, and De Foe's "Essay on Projects" contains intimations and projections of nearly all the most salutary reforms in morals, in law, and in practical ethics that have since blessed the world.

It was Franklin's bookish inclinations that made him a printer, and to the end of his life he illustrated, whenever he had occasion to speak or write on educational matters, how his training as a printer determined his ideas in education.

His mind was universal, and he was, therefore, interested in all human affairs. As a boy, he took a peculiar interest in the drama, and to the end of his life was fond of the theater. On this mimic stage he saw the larger action of life epitomized, and he was doubtless able to draw conclusions from the conduct of the players on the stage which were of value to him in his large diplomatic action. Throughout his works are constant references to the plays of the day, and he is fond of illustrating a letter to a friend by a passing remark upon some popular play. His boyhood was cast in the age of ballad mongery, and to the end of his days he enjoyed that kind of literature. The petty vender of street ballads is the potent illustration of the persistency of this kind of literature to our day.

A bookish boy would make friends of bookish lads, and one John Collins, with whom Franklin early became acquainted, enabled him to

enter upon a new epoch in life—the epoch of conversation. Between these boys there were long controversies on the passing questions of the day, and on the various theories in the projection of which youths are so fertile. Collins, we are told, denied the “propriety of educating the female sex in learning, and their abilities for study.” Franklin took the opposite side, and it seems to have converted him in favor of woman’s education. It was this controversy which, left unsettled in conversation, was carried on by correspondence, and Franklin thus began to be a writer. He tells us that—

Three or four letters of a side had passed, when my father happened to find my papers and read them. Without entering into the discussion, he took occasion to talk to me about the manner of my writing; observed that though I had the advantage of my antagonist in correct spelling and pointing (which I owed to the printing house) I fell far short in elegance of expression, in method and perspicuity, of which he convinced me by several instances. I saw the justice of his remarks, and thence grew more attentive to the manner in writing and determined to endeavor at improvement.

This proof of the ability of Franklin to compare himself with others is significant, for it illustrates one of the chief powers of his mind. He was quick to notice points of superiority or of inferiority, and being ambitious to excel he proceeded in the most practical way to overcome the deficiencies. The method in which he overcame them became, in his opinion; the right procedure for all other persons in a similar condition, and it was later formulated by him as a method in education; it was to take the best writings of the day and to imitate them. Happily for him, Addison was giving the “Spectator” to the world; and an odd volume, a third, fell into Franklin’s hands. He tells us that the reading of it produced a sensation new to him. He read it again and again and was delighted with it, and he afterwards laid down the proposition that all children could derive the same benefit from the “Spectator” which he had derived.

His method was simple, yet original; it was to read the “Spectator” and to rewrite it from memory; he compared his version with the original, and corrected and rewrote it until his own composition was as perfect as that of Addison himself. This taught him the limitations of his own vocabulary and led him, doubtless, afterwards to insert in his plan for the education of youth a provision for the study of the dictionary. In his “Sketch of an English School” he provides, for the first or lowest class to which children of his age when he began reading the “Spectator” would belong, that—

A vocabulary of the most usual difficult words might be formed for their use, with explanations; and they might daily get a few of those words and explanations by heart, which would a little exercise their memories; or at least they might write a number of them in a small book for the purpose, which would help to fix the meaning of those words in their minds, and at the same time furnish every one with a little dictionary for his future use.

His own boyish experiences taught him the necessity for a vocabu-

lary, and not for a vocabulary merely, but for a vocabulary always responsive to the thought that the word used might be the best word that could be used. This opinion, formulated by Franklin in his "Sketch of an English School for the Consideration of the Trustees of the Philadelphia Academy," to which I shall frequently refer, is plainly the result of Franklin's experience in self-education; and when he tells us in his "Autobiography" that he made verses because their composition laid him under the constant necessity of searching for variety of words and for words exactly suited to the thought, and that he turned tales into verse, and after he had forgotten the prose turned them back again, and in this manner, by comparing his work afterwards with the original, discovered his faults and amended them, we catch a glimpse of the value of comparison in education, and not merely of comparison, but of comparison made for practical purposes. So perfectly did this scheme work that he tells us in a delightful way how he sometimes had the pleasure of fancying that in certain parts of small import he had been lucky enough to improve the method or the language, and this encouraged him to think he might possibly, in time, come to be a "tolerable English writer," of which he was extremely ambitious; and to show how such a result was possible for any one who, like himself, was an indented apprentice, he adds that the time for making these exercises and for reading was at night after his work was done, or in the morning before it began, or even on Sundays when he was alone; and as he rather disliked to attend church, he eased his conscience by perfecting himself in English style. Certainly the judgment of posterity has awarded him a first rank in English composition; in other words, Franklin takes pains to tell us how his self-education was a success, and how all other people, if they choose, may educate themselves and become "tolerable English writers."

He soon discovered his ignorance in figures, and at 17 was old enough to be ashamed of it. He overcame his deficiency in figures as he had overcome his deficiency in composition, by taking "Cocker's Arithmetic" and going through the whole by himself "with great ease." Not only arithmetic, but books of navigation, Seller's and Shermy's, were studied in the same manner, but, having no practical use for the higher mathematics, he never pursued them. About this time he read Locke "On the Human Understanding," and the "Art of Thinking," by Messrs. Du Port Royal.

Intent on improving his language, he found an English grammar, Greenwood's, at the end of which "there were two little sketches of the arts of rhetoric and logic, the latter finishing with a specimen of a dispute in the Socratic method," and he soon afterwards procured Xenophon's "Memorable Things of Socrates." He had made a discovery: If Addison had charmed him, Xenophon captivated him, and from Xenophon he learned the greatest lesson of his life. "From that time," says he, "I was charmed by it, adopted it, dropped my abrupt contra-

diction and positive argumentation, and put on the humble inquirer and doubter."

Again and again in the "Autobiography" and from other sources we learn how Franklin through his long life avoided dogmatic disputation and won his cause quite as much by his practice in the art of doubting and questioning as by his powers for confutation. He was a born diplomat, and his sense of the principles of diplomacy was early manifest. So important did the Socratic method become in his ideas of education that, in drawing up his "Proposals relating to the Education of Youth in Pennsylvania," out of which grew the University of Pennsylvania, he encouraged all those studies which involve conversation and writing. He would acquaint youth with the best models among the ancients, particularly pointing out their beauties. But his diplomatic experience made him familiar with the feebleness of mere talk, and he said:

Modern political oratory being chiefly performed by the pen and press, its advantages over the ancients in some respects are to be shown; as that its effects are more extensive and more lasting.

He anticipated the age of books, newspapers, magazines, and the numerous productions of pen and press, and was fully conscious of the enormous and superior power of the printed page over the spoken word; so, from his own experience, he advocated all those studies by which the human mind is most widely reached and most powerfully influenced.

His own writings are frequently in the Socratic method, and in his "Sketch of an English School" he advocated the reading of short pieces by the master, not exceeding the length of a "Spectator," with the proper modulations of voice, due emphasis, and suitable action where action is required, and that the youth should imitate the manner of the original. The beauties of the piece were to be discussed by the instructor, and from a variety of readings, by which good styles of all kinds were made known, children should learn to imitate such excellence and be able readily to put their thoughts into the form best adapted to accomplish the end.

Having discovered the value of the Socratic method, he next discovered the value of expressing himself in terms of modest diffidence, and to the end of his life he was noted for the modesty with which he advanced his opinions. Perhaps no illustration of this quality is finer than his speech read to the convention of 1787 in its closing words. Franklin himself was too feeble to read his speech, and his colleague, Thomas Wilson, read it for him. Perhaps this speech gave us the Constitution of the United States.

I confess [said Franklin] that there are several parts in this Constitution that I do not at present approve, but I am not sure that I shall never approve them, for, having lived long, I have experienced many instances of being obliged by better information or fuller consideration to change opinions, even on important subjects, which I once thought right, but found to be otherwise. It is, therefore, that the older I grow the more apt I am to doubt my own judgment and to pay more respect

to the judgment of others. Most men, indeed, as well as most sects in religion, think themselves in possession of all truth, and that whenever others differ from them it is so far error.

And then he characteristically points his speech by a telling illustration:

Steele, a protestant in education, tells Pope that the only difference between our churches in their opinions of the certainty of their doctrines is that the Church of Rome is infallible and the Church of England is never in the wrong. But though so many private persons think almost as highly of their own infallibility as they do of their sect, few express it so naturally as a certain French lady, who, in a dispute with her sister said: "I do not know how it happens, sister, but I meet with nobody but myself that is always in the right"—"*il n'y a personne que moi qui a toujours raison.*"

It is not often that the lessons of childhood regulate our lives, but the Socratic method of Franklin's boyhood determined his whole attitude toward public questions, and, probably more than any other characteristic of the man, made him the most successful diplomat that our country has ever had. Frequently in addressing his younger friends he laid down the lesson of modest diffidence as highly conducive to practical success in life. His defense for this training was that if we advance our sentiments too dogmatically we may not only provoke contradiction, but prevent a candid attention, so that he bases his philosophy of diffidence upon its utility.

The facility with which Franklin had undertaken his self-education in literature and in mathematics characterized all his efforts in practical affairs. Throughout his "Autobiography" he is fond of mentioning, whenever he can, the advantages of self-education. The principle which won success in rewriting a "Spectator" he applied in industry, and soon detected its virtues in practical affairs. Like all self-educated men, his experience crystallized in maxims, some of which he formulated himself, but nearly all of them were taken from the experience of mankind at large. Like Daniel Webster, Franklin made great use of the labor of others, and it is interesting to note his account of the principles and morals which influenced the events of his life.

My parents [he writes] had early given me religious impressions, and brought me through my childhood piously in the dissenting way. But I was scarce 15, when, after doubting by turns several points, as I found them disputed in the different books I read, I began to doubt of the Revelation itself. Some books against deism fell into my hands; they were said to be the substance of the sermons which had been preached at Boyle's lectures. It happened that they wrought an effect on me quite contrary to what was intended by them, for the arguments of the deists, which were quoted to be refuted, appeared to me much stronger than the refutations; in short, I soon became a thorough deist.

His habit of doubting where he could not overcome by an adequate reply bred in him not only a love of experiment to test the explanations of phenomena, but led him when he was unable to obtain a satisfactory explanation to remain in doubt. He was one of the greatest of experimentalists. As might be expected of one whose whole philosophy was utilitarian, his life is replete with apt illustrations of the

utility of experiments, so that his biographer is able to give several pages to the mere enumeration of his discoveries, all of which were of a useful kind, such as: The deliverance of mankind from smoky chimneys; the practical means of ventilation; numerous discoveries in electricity; the determination of the temperature of the Gulf Stream; the consumption by a fire of its own smoke; the construction of water-tight compartments in ships; and others. So strong was his habit of observation that in his various journeys across the ocean, and in the colonies, in Great Britain and Ireland, and on the Continent, he was always alert to detect not only the wants of the people in whatsoever region he was traveling, and the means for supplying those wants, but he also gave minute attention to natural history, as when on his first voyage from Philadelphia to England in 1726, being then in his twentieth year, he records in his journal changes in the color of dolphins, and experiments with dolphins living and dead to determine the cause of the loss of their luster; and a few days later he makes observations on a shellfish found upon a floating weed in the Gulf Stream, and records that in order to strengthen his conjecture whether his opinions with respect to the development of this creature were true he resolved to keep "the weed in salt water, renewing it every day, till we came on shore, by this experiment to see whether any more crabs will be produced or not in this manner." His own powers of observation and comparison being of the highest order, he naturally imputed to the effects of such powers when exercised by man many of the advantages which he himself derived from them. This doubtless led him in his "Plan for the Education of Youth in Pennsylvania" to encourage experimentation, that by instruction in mechanics men might be informed "of the principles of that art by which weak men perform such wonders, labor is saved, and manufactures expedited."

And, again, touching on agriculture, a subject which received careful attention from his eminent contemporaries Washington and Jefferson, having affirmed that "natural history will also afford opportunities of introducing many observations relating to the preservation of health, which may be afterwards of great use," he adds:

While they (the students) are reading natural history might not a little gardening, planting, grafting, and inoculating be taught and practiced; and now and then excursions to the neighboring plantations of the best farmers, their methods observed and reasoned upon for the information of youth, the improvement of agriculture being useful to all, and skill in it no disparagement to any?

We should not forget that modern life compels a curriculum in technical instruction in our colleges and universities which could not possibly be called for in Franklin's time. He lived before the manufacturing epoch; before the age of rapid transportation and the application of electricity and steam to the wants of man; therefore we need not expect to find in his "Proposals for the Education of Youth" the equipment of a modern chemical, mechanical, or biological laboratory.

The chief occupation of Americans was farming, and like Washington and Jefferson, as we shall see later, he advocated all possible experiments which would improve the principal employment of the times in which he lived and greatly add to its productivity. But the principle by which he was animated was the same as that which when applied has equipped the best laboratories of the modern educational world.

The first step in science is to doubt, and Franklin at eighteen had taken that step. He began to formulate from his own reason and observation the principles or maxims of the moral world. An experimenter by birth, and by his intellectual powers and by his training becoming usefully conventional in his manner both of acquiring and of giving knowledge, he adapted himself to the conditions about him and escaped eccentricity, so that he was enabled to influence the world by his principles of life when another man, equally intellectual, by neglecting to adapt himself to the conventions of society would have had no influence over it whatever.

Franklin's sociology was founded on his conception of the general welfare; this was to him the great problem of life. It is to him we are indebted for the established use of the phrase "the general welfare." His large conception of humanity made him a citizen of the world and his conception of morality was founded upon his interpretation of the general welfare. He says:

I grew convinced that truth, sincerity, and integrity in dealings between man and man were of the utmost importance to the felicity of life, and I formed written resolutions, which still remain in my journal book, to practice them ever while I lived.

Observation had taught him the utility of virtue, and it may be said that had there been no system of morality in the world when Franklin was born he would have produced one and would have founded it upon experimentation, and his experimentation would have been based solely upon the doctrine of utility.

We are not surprised to learn from him that revelation had little weight with him; that he entertained the opinion that certain actions should be forbidden because they were not beneficial to man, not that they were to be considered injurious to man because they were forbidden. In other words, all that promotes the general welfare is good, all that hinders it is bad. Yet his childhood teaching had bred in him the belief in the existence of a God, and with this primary conception of the Divine Providence controlling the destiny of the human race he joined the utilitarian doctrine that truth and sincerity and integrity are virtues, because they are of the utmost importance to the felicity of life; therefore, in his "Sketch of an English School," he would have all the lessons chosen for reading "contain some useful instruction whereby the understanding of youth may at the same time be improved." He would have Dr. Johnson's "First Principles of Morality" read by scholars in the fifth form, "and explained by the master to lay

a solid foundation of virtue and piety in their minds." And in his "Proposals for the Education of Youth in Pennsylvania" he remarks:

As to their studies, it would be well if they could be taught everything that is useful and everything that is ornamental. But art is long, and their time is short. It is therefore proposed that they learn those things that are likely to be most useful and most ornamental; regard being had to the several professions for which they are intended.

And he would teach morality "by descanting and making continual observations on the causes of the rise and fall of any man's character, fortune, and power, mentioned in history; the advantages of temperance, order, frugality, industry, and perseverance."

It is to be noticed that he valued temperance, order, and frugality and the other virtues as advantageous to the general welfare, and did not recommend the study of morality for its own sake. Because the virtues were so advantageous, he declared "the general natural tendency of reading good history must be to fix in the minds of the youth deep impressions of the beauty and usefulness of virtue of all kinds, public spirit, and fortitude."

Having laid down the proposition that virtue was advantageous and that it might be taught by examples from history, he turned to the subject of religion in the curriculum, and advocated its presence there for the same reason that he had received it into his own philosophy.

History [he says] will also afford frequent opportunities of showing the necessity of a public religion, from its usefulness to the public, the advantages of a religious character among private persons, the mischief of superstition, and the excellency of the Christian religion above all others, ancient or modern.

In other words, Franklin found religion in the world and he concluded that it was a necessary element in promoting and securing the general welfare, and because it is necessary, therefore it should be observed; but Franklin, unlike Emerson, would not have produced a system of religion had there been none in the world in his time. Having admitted by the force of his own self-experimentation the necessity of religion in society, he deduces its usefulness to the public, and this giving occasion for another indulgence in comparison, he at once concluded that "the Christian religion above all others, ancient or modern, was the most excellent." Had Franklin been born in India he probably would have advocated the religion of Buddha.

The notion that history affords frequent opportunities of showing the necessity of a public religion from its usefulness to the public, which is laid down in his "Proposals for the Education of Youth in Pennsylvania," of 1749, was anticipated thirty years before, as he tells us in his "Autobiography." His observations before his twentieth year having taught him the advantages to be derived from ingenious acquaintance, he organized the famous club called the "Junto," which met on Friday evenings, and he drew up rules for its procedure. Three classes of subjects were to be discussed by the company—morals, poli-

tics, and natural philosophy—for these three comprehended all the utilities, and the wise understanding of the principles of them would contribute to the general welfare. In making up the Junto, Franklin took men who were successfully engaged in the ordinary pursuits of life. There was a copier of deeds, a surveyor, a shoemaker, a mechanic, a merchant's clerk, several printers, and a "witty gentleman of fortune." Franklin would have us believe that one common interest held these men together—the love of books. If I were to name the symbol of Franklin's philosophy of education, I should say a book. Dr. Franklin and Dr. Samuel Johnson were as little alike as any two men of that age in their ideas of politics and religion; they were both self-educated men, and the means of their education was books. It was Dr. Johnson who said, "Read anything five hours a day and you will soon be learned." Franklin and Johnson were the two great men of that century who owed their power and place in life to their love of books. Franklin, like Carlyle, probably would have said, "The best university is the best collection of books."

The Junto at Philadelphia was the first book-loving and book-making body of men of America, for out of their labors grew the Library Company of Philadelphia, which became the parent of all the circulating libraries of America. The place of books in Franklin's philosophy of education is almost paramount; he recognized the lasting power of the printed page, and therefore in his scheme for the instruction of children he elaborates his theory of education in making provision for their exhaustive practice of composition and the reading of books. We must not forget that at the time that the Junto was formed books were scarce in America, that the ability to read and write was not common in the colonies, that there were no American libraries, and that books were expensive.

Each of the six classes into which Franklin would divide his ideal English School was chiefly engaged in composition and in reading. His first, or lowest, class should read pieces such as "Croxall's Fables," which were to be read aloud to them by the master and the difficult words explained. It was this class which was to exercise memory by daily getting new words and by making a "little dictionary for future use." In the study of the "Fables" very great care was to be taken for the improvement in orthography by learning the English grammar rules, and every effort made to secure "good spellers very early." Franklin, like all printers, had a horror of bad spelling. "For," said he, "it is a shame for a man to be so ignorant of this little art in his own language as to be perpetually confounding words of like sound and different significations." This was the child's first equipment—to understand a book.

The second class was "to be taught reading with attention and with proper modulations of the voice, according to the sentiment and the subject." It is a pity that so many teachers of our day are almost in

total ignorance of the inexpressible value to the child of understanding what he reads, and one of the saddest errors in primary education is the omission to teach "reading with attention and with proper modulations of the voice, according to the sentiment and the subject." The understanding of the lessons in the second class would require them to give an account first of the parts of speech and the construction of one or two sentences, which would oblige them to recur frequently to their grammar, and to fix its principal rules in their memories; "next, of the intention of the writer or the scope of the piece, the meaning of each sentence, and of every uncommon word. This would early acquaint them with the meaning and force of words, and give them that most necessary habit of reading with attention." It was to this class that the master was to point out all the beauties and lessons of the pieces. Variety of subject and style in prose and verse, stories, sermons, the speeches of generals to their soldiers, which comprised the most interesting portions of "Plutarch's Lives," with which Franklin had become familiar in his boyhood, speeches in tragedy and in comedy, the mimic world which Franklin loved, odes, satires, letters, and blank verse, all comprising the various equipment of the man who would express himself readily to his fellow-man, were to constitute the reading lessons.

An examination of a modern series of readers will show at a glance the world's opinion of Franklin's plan for the instruction of classes by well-chosen lessons for reading, and I venture to say that the one book in our public schools which conveys, or can be made to convey, the greatest amount of training is the reading book.

In order that children might read with attention Franklin required:

That they should first study and understand the lessons before they are put upon reading them properly, to which end each boy should have an English dictionary to help him over difficulties. When our boys read English to us we are apt to imagine they understand what they read, because we do, and because it is their mother tongue; but they often read, as parrots speak, knowing little or nothing of the meaning; and it is impossible that a reader should give the due modulation to his voice and pronounce properly unless his understanding goes before his tongue and makes him master of the sentiment. Accustoming boys to read aloud what they do not first understand is the cause of those even, set tones, so common among readers, which when they had once got a habit of using they find so difficult to correct, by which means among fifty readers we scarcely find a good one. For want of good reading, pieces published with a view to influence the minds of men for their own or the public benefit lose half their force. Were there but one good reader in a neighborhood a public orator might be heard throughout a nation with the same advantages, and have the same effect upon his audience as if they stood within the reach of his voice.

Here, as ever, Franklin bases his ideas of education upon the advantages which were to be derived from them in promoting the general welfare. He would have boys learn reading in order to understand the sentiment, and not merely to understand, but that the sentiment might influence them as if it had been spoken to them, for a book in Franklin's opinion had no right to exist unless it contributed to the

public benefit, and reading, the means by which the thought of the book was made public, should be taught to the advantage of the whole nation. There will be occasion frequently to refer to Franklin's plan for the education of children.

The Junto was almost as advantageous to Franklin and his associates as any university of the times could have been. His conception of the methods and possibilities of self-education was large, and the active interest which each member of the Junto showed in its prosperity demonstrated to him the advantage in general education of the same methods which made the Junto prosperous. The controlling principle of the Junto was that of self-interest; its rules and usages are evidently derived from Franklin's recollections of Cotton Mather's Benefit Societies. Cotton Mather had greatly influenced Franklin in his youth and had originated a system of neighborhood guilds, or benefit societies, which were formed in the several Congregational churches directly under Mather's influence. These societies, to twenty of which Mather himself belonged, were organized for the purpose of promoting the general interests of religion in Massachusetts and Mather had drawn up "certain points for consideration"—that is, rules or orders for the management and to indicate the scope of the societies. The rules for the government of Mather's societies are interesting as the precedent for the rules of the Philadelphia Junto.

The "Points of Consideration" were the following:

1. Is there any remarkable disorder in the place that requires our endeavor for the suppression of it; and in what fair, likely way may we endeavor it?
2. Is there any particular person whose disorderly behavior may be so scandalous and so notorious that we may do well to send unto the said person our charitable admonitions? Or are there any contending persons whom we should admonish, to quench their contentions.
3. Is there any special service to the interest of religion which we may conveniently desire our minister to take notice of?
4. Is there anything we may do well to mention unto the justices for the further promoting good order?
5. Is there any sort of officers among us to such a degree unmindful of their duty that we may do well to mind them of it?
6. Can any further methods be devised, that ignorance and wickedness may be chased from our people in general, and that household piety in particular may flourish among them?
7. Does there appear any instance of oppression or fraudulence in the dealings of any sort of people that may call for our essays to get it rectified?
8. Is there any matter to be humbly moved into the legislative power to be enacted into a law for public benefit?
9. Do we know of any person languishing under sore and sad affliction; and is there anything we may do for the succor of such an afflicted neighbor?
10. Has any person any proposal to make for our own further advantage and assistance, that we ourselves may be in a probable and regular capacity to pursue the intention before us?

In Mather's Benefit Societies Franklin, as a boy, had heard discussions of a practical character bearing upon the immediate concerns of life about him, and the impression on his mind was permanent. In-

structed by this boyish experience, in 1730 he organized the Junto with a purpose similar to that of the societies—the improvement of its members and their fellow-citizens in virtue, knowledge, and practical wisdom. Franklin did not seek to teach religion, but to encourage the acquisition of useful knowledge in morals, politics, and natural history. The membership in the Junto was limited; and a candidate declared his love for mankind in general, his belief in freedom of thought, a love of truth for truth's sake, and his desire to obtain knowledge without prejudice, and, perhaps of chiefest importance, to communicate to others all kinds of useful information within his power.

The Junto met on Friday evenings, and its rules illustrate Franklin's theory as to "abrupt contradiction and positive argumentation," and the "modest diffidence" of "a humble inquirer and doubter." Therefore, instead of prescribing dogmatic rules, or, as we would say, adopting a constitution and by-laws, the Junto, at the opening of its meetings, read twenty-four queries which, it will be noticed, may be grouped under the three headings of morals, politics, and natural philosophy. These queries were:

Have you read over these queries this morning in order to consider what you might have to offer the Junto touching any one of them? Viz:

1. Have you met with anything in the author you last read, remarkable or suitable to be communicated to the Junto, particularly in history, morality, poetry, physic, travels, mechanic arts, or other parts of knowledge?

2. What new story have you lately heard agreeable for telling in conversation?

3. Hath any citizen, in your knowledge, failed in his business lately, and what have you heard of the cause?

4. Have you lately heard of any citizens thriving well, and by what means?

5. Have you lately heard how any present rich man, here or elsewhere, got his estate?

6. Do you know of a fellow-citizen who has lately done a worthy action deserving praise and imitation, or who has lately committed an error proper for us to be warned against and avoid?

7. What unhappy effects of intemperance have you lately observed or heard, of imprudence, of passion, or of any other vice or folly?

8. What happy effects of temperance, of prudence, of moderation, or any other virtue?

9. Have you, or any of your acquaintance, been lately sick or wounded? If so, what remedies were used, and what were their effects?

10. Whom do you know that are shortly going on voyages or journeys, if one should have occasion to send by them?

11. Do you think of any thing at present in which the Junto may be serviceable to mankind, to their country, to their friends, or to themselves?

12. Hath any deserving stranger arrived in town since last meeting, that you have heard of? And what have you heard or observed of his character or merits? And whether, think you, it lies in the power of the Junto to oblige him, or encourage him as he deserves?

13. Do you know of any young beginner lately set up, whom it lies in the power of the Junto any way to encourage?

14. Have you lately observed any defect in the laws of your country, of which it would be proper to move the legislature for an amendment? Or do you know of any beneficial law that is wanting?

15. Have you lately observed any encroachment on the just liberties of the people?
16. Hath any body attacked your reputation lately? And what can the Junto do towards securing it?
17. Is there any man whose friendship you want, and which the Junto, or any of them, can procure for you?
18. Have you lately heard any member's character attacked, and how have you defended it?
19. Hath any man injured you, from whom it is in the power of the Junto to procure redress?
20. In what manner can the Junto, or any of them, assist you in any of your honorable designs?
21. Have you any weighty affair on hand in which you think the advice of the Junto may be of service?
22. What benefits have you lately received from any man not present?
23. Is there any difficulty in matters of opinion, of justice and injustice, which you would gladly have discussed at this time?
24. Do you see any thing amiss in the present customs or proceedings of the Junto which might be amended?

This practical means for a liberal education was effected by Franklin when he was but 21 years of age, and undoubtedly the advantages which he and his associates obtained from their discussions in the Junto largely contributed to Franklin's success in life, and tended to shape all his ideas in education. If anyone would understand Franklin's idea of a school, let him examine the history of the Junto.

The times were productive of a different set of inquiries or questions for debate than would interest a modern debating society; we must not forget that the eighteenth century in America was the period of the determination of the theory of republican government, and the Junto discussed political questions, all of which tended to the definition of government. The political thinkers of the eighteenth century gave us the definition of our theory of the nature of government, the nineteenth century is working out the theory of the administration of government. The political discussions in the Junto, as some of the subjects are recorded, were:

Can any one particular form of government suit all mankind? How may the possession of the Lakes be improved to our advantage?

Some of the moral questions were:

Which is less criminal, a bad action joined with a good intention, or a good action with a bad intention?

Should it be the aim of philosophy to eradicate the passions?

Can a man arrive at perfection in this life?

Which is best, to make a friend of a wise or good man that is poor, or of a rich man that is neither wise nor good.

Which of the two is the greatest loss to the country if they both die?

Of questions touching on natural philosophy:

Whence comes the dew that stands on the outside of a tankard that has cold water in it in the summer time?

Why does the flame of a candle tend upward in a spire?

And of questions of a practical turn, one suggestive of Franklin himself:

Would not an office of insurance for servants be of service, and what methods are proper for erecting such an office?

This is of interest when we think of the numerous companies which now insure employers against loss by employes, and in other forms, of the insurance of domestic service.

The Junto was limited to a membership of twelve, and Franklin insisted on kindness of speech, good manners, and cheerfulness in debate, which were secured by common agreement, by the singing of songs, and by diversions of various kinds. The influence of the Junto on American life is felt to this day. America was probably the first country in the world in which debating societies have prospered among all classes of men, and they have tended to educate the American people in all sorts of subjects which have contributed, as Dean Stanley would have said, to the "education of after life." A volume might be written on the influence of debating societies in the education of Americans.

I do not understand that Franklin would make a school a debating society merely, but an examination of his plan for six classes in an English school shows how the methods and ends of the Junto were ever present in his mind. The third class in his English school was "to be taught speaking properly and gracefully, which is near akin to good reading, and naturally follows it in the studies of youth." The scholars were to "begin with learning the elements of rhetoric from some short system, so as to be able to give an account of the most useful tropes and figures."

Let all their bad habits of speaking, all offenses against good grammar, all corrupt or foreign accents, and all improper phrases be pointed out to them. Short speeches from the Roman, or other history, or from the parliamentary debates, might be got by heart, and delivered with the proper action, etc. Speeches and scenes in our best tragedies and comedies (avoiding everything that could injure the morals of youth) might likewise be got by rote, and the boys exercised in delivering or acting them; great care being taken to form their manner after the truest models.

For their further improvement, and a little to vary their studies [he says] let them now begin to read history, after having got by heart a short table of the principal epochs in chronology. They may begin with Rollin's ancient and Roman histories, and proceed at proper hours, as they go through the subsequent classes, with the best histories of our nation and colonies. Let emulation be excited among the boys by giving, weekly, little prizes, or other small encouragements, to those who are able to give the best account of what they have read, as to time, places, names of persons, etc. This will make them read with attention, and imprint the history well in their memories. In remarking on the history the master will have fine opportunities of instilling instruction of various kinds, and improving the morals as well as the understandings of youth.

All this in the spirit of the Junto, the book, the moral instruction, the debate; but there is more of the Junto also:

The natural and mechanic history contained in the "*Spectacle de la Nature*" might also be begun in this class, and the subject should be continued through the

subsequent classes by other books of the same kind; for, next to the knowledge of duty, this kind of knowledge is certainly the most useful as well as the most entertaining. The merchant may thereby be enabled better to understand many commodities in trade; the handicraftsman to improve his business by new instruments, mixtures, and materials; and frequently hints are given for new manufactures, or new methods of improving land, that may be set on foot greatly to the advantage of a country.

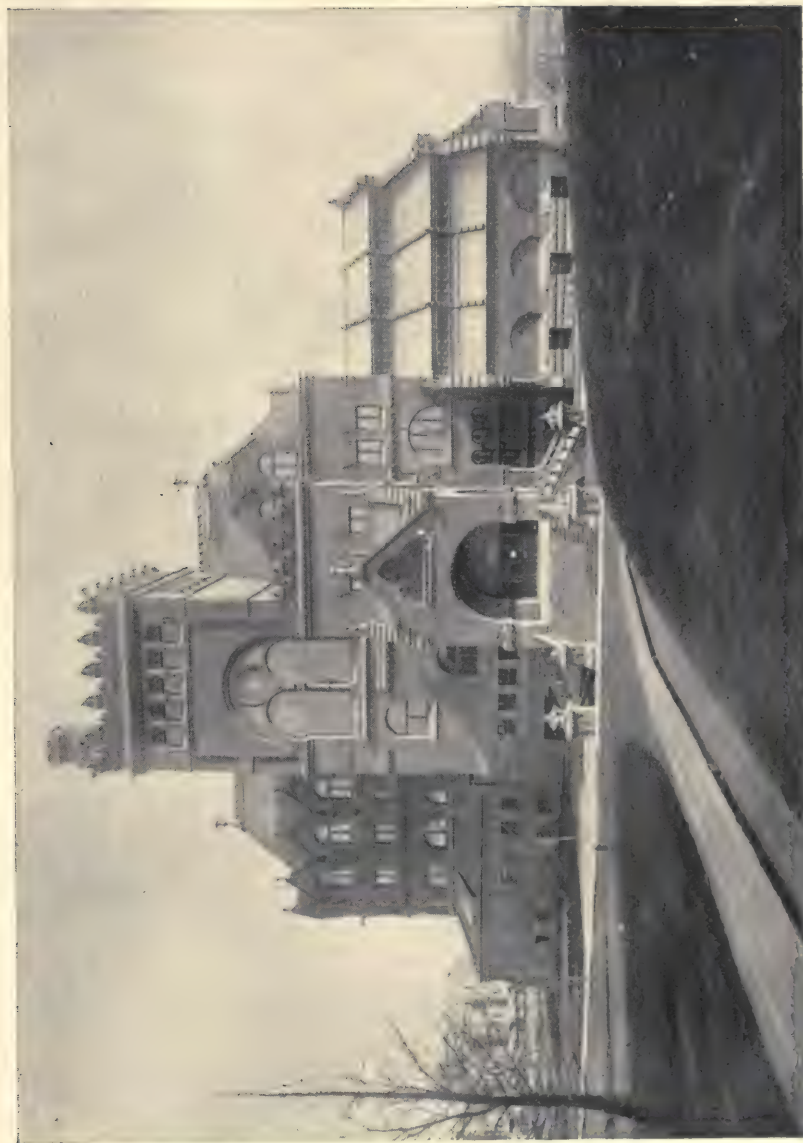
It is not strange that Franklin should pronounce studies in natural history "the most useful as well as the most entertaining." He saw in them the possibilities of almost infinite improvement in manufactures and agriculture. His views of the value to manufactures of studies in natural history is remarkable, for at the time in which he wrote there were no manufactures in America, and his broad generalization of the value of mechanics and natural history anticipates our present manufacturing age.

Throughout his life Franklin was a scientific man, but he seems to have made all his experiments in science for utilitarian purposes. He seems never to have pursued scientific investigations merely for speculation. The whole cast of his mind was of a practical kind, and he advocated the study of "natural and mechanic history" in school because such studies would give hints "greatly to the advantage of the country." The wisdom of Franklin's plan for including natural history in its broadest meaning in the course of study is significantly recognized in the foundation, endowment, increase, and practical value of the numerous technical schools in the country at the present time. He anticipated the chief educational departure of modern times.

In the Junto were discussed many of the economic questions of the day, and one debate so interested Franklin that he elaborated the subject in a pamphlet entitled "The Nature and Necessity of a Paper Currency," a pamphlet of great importance practically at the time and in the history of political economy, and of which more will be said.

The organization of the Junto made known more clearly one of the wants of the time, a library. The members had a few books as their personal property, but there were not enough books among them to meet the wants of the society. The meetings of the Junto were first held in a tavern, one of the alehouses common in Philadelphia at the time, where the members assembled informally and brought such books as illustrated the subjects for debate. This seems to have suggested to Franklin the organization of a library for the use of the Junto in debate. His suggestion was approved and a small room in Mr. Grace's house was hired for the use of the Junto and for the storage of its books. Some of the members complained that their books were misused, and therefore took them home and deprived the Junto of the use of them.

The biographer of Franklin reminds us that books in 1731 were not like books of our day, cheap, abundant, and of convenient size; the heavy folios of that time—and some of the original books of the Junto



THE UNIVERSITY LIBRARY.

may now be seen in the Philadelphia Library—were not adapted for ease of reading in traveling, and Franklin conceived of founding a permanent library. With his usual sagacity he made it of common interest. A subscription was undertaken by which each subscriber should contribute 2 pounds sterling for the first purchase of books and 10 shillings a year for the increase of the library. He had some difficulty in securing a sufficient subscription. Hiding himself under the phrase of “a number of friends,” and following the ruling principle of “humble diffidence” of which he was so fond, he was at last able to see the affair going on smoothly, and in five months fifty names were obtained. A list of books was made out and an order to the value of 45 pounds was sent to London.

The books arrived in Philadelphia in October, 1732, and were placed in a room in the house of Mr. Grace which was set apart for the use of the Junto; a librarian was appointed, and the books were given out once a week. Franklin served as librarian for a time. The undertaking was a success and we are told of donations to it of books, money, and curiosities. It grew rapidly; the company obtained a charter, and increased its membership to a hundred, and, as Franklin says:

This was the mother of all the North American subscription libraries, now so numerous. It is become a great thing in itself, and continually goes on increasing; these libraries have improved the general conversation of the Americans, made the common tradesmen and farmers as intelligent as most gentlemen from other countries, and perhaps have contributed in some degree to the stand so generally made throughout the colonies in defense of their privileges.¹

When Franklin describes the library as “a great thing in itself,” he is emphasizing the cardinal doctrine of his educational system, the use of the right book. His scheme of education embodies methodical instruction in a few selected books which embody the best thoughts of the best minds, which should be conveyed to youth in the best manner; that is, in a natural manner. It is impossible to estimate the influence of Franklin's idea on America. If we measure it by the influence of libraries in our country, we might safely affirm that Americans are more indebted to Benjamin Franklin for their education than to any other man that ever lived. The large possibilities of Franklin's principles of education are to be valued by their adaptability to the ever-growing wants of the people. It should not be forgotten that the principle of the circulating library and the first principle of Franklin's scheme of education grew up in his mind from his own experience in self-education; in the reading of books when a child, in learning to write English correctly in the organization of the Junto, in its debates on morals, politics, and natural philosophy, and in the necessary equipment for its debates—a library.

Franklin's practical mind seems to have viewed morality as it viewed politics and natural philosophy, that by thinking, by experiment, by observation, and by practice, a man might arrive at moral perfection.

It would be a gross neglect of Franklin's philosophy of education were we to omit some account of his "Art of Virtue." We must not forget that Franklin was born in New England; that his father and mother were members of the Old South church, and that he himself was baptized there; that his earliest impressions were religious impressions; that his New England home was the home of an earnest and somewhat polemic Calvinism, with its rigid simplicity. The insistence of his parents upon a wholesome industry and practical morality, and a stern recognition of the "chief end of man," made an impression upon Franklin's character that never was effaced. He says:

I had been religiously educated as a Presbyterian; but, though some of the dogmas of that persuasion, such as the eternal decrees of God, election, reprobation, etc., appeared to me unintelligible, and I early absented myself from the assemblies of the sect (Sunday being my studying day), I never was without some religious principles. I never doubted, for instance, the existence of a Deity, that He made the world, and governed it by His providence; that the most acceptable service of God was the doing good to man; that our souls are immortal; and that all crimes will be punished, and virtue rewarded, either here or hereafter.¹ These I esteemed the essentials of every religion, and being to be found in all the religions we had in our country, I respected them all, though with different degrees of respect, as I found them more or less mixed with other articles, which, without any tendency to inspire, promote, or confirm morality, served principally to divide us, and make us unfriendly to one another.

He therefore seldom attended public worship, though he had "an opinion of its propriety, and of its utility when rightly conducted," and he regularly paid his annual subscription for the support of the only Presbyterian meeting in Philadelphia. Viewing religion as "proper and useful," he conceived of it, as he conceived of politics and natural philosophy, that it should be the subject of investigation, improvement, and adaptation to the wants of man. He could not think of religion as being incapable of improvement, and as he identified religion and morality, he says:

It was about this time I conceived the bold and arduous project of arriving at moral perfection; I wished to live without committing any fault at any time, and to conquer all that either natural inclination, custom, or company might lead me into. As I knew, or thought I knew, what was right and wrong, I do not see why I might not always do the one and avoid the other. But I soon found that I had undertaken a task of more difficulty than I had imagined; while my attention was taken up and care employed in guarding against one fault, I was often surprised by another; habit took the advantage of inattention; inclination was sometimes too strong for reason. I concluded at length that the mere speculative conviction that it was our interest to be completely virtuous was not sufficient to prevent our slipping, and that the contrary habits must be broken and good ones acquired and established before we can have any dependence on a steady, uniform rectitude of mind.

In other words, Franklin proposed to educate himself in morality as he had educated himself in English composition and in arithmetic. He

¹See the clause on a belief in a future state of rewards and punishments in the Constitution of the State of Pennsylvania of 1776, and of 1790, which Franklin was concerned in making. It is in the present State Constitution of 1873. Art. I, § 4. The Constitution of 1776 and of 1790 are in "The Proceedings Relative to Calling the Conventions of 1776 and 1790," etc. Harrisburg, 1825, p. 54, p. 129, *et seq.*, p. 296.

therefore contrived a method of self-education in morals. He drew up a catalogue of the virtues, and, for sake of clearness, used "rather more names, with fewer ideas annexed to each, than a few names with more ideas." These virtues were thirteen in number: Temperance, silence, order, resolution, frugality, industry, sincerity, justice, moderation, cleanliness, tranquility, chastity, humility. The moral world to him was a region for experiment, and he was the moral world. He proceeded to experiment with himself as he would experiment in electricity. Perhaps the originality and practical tendency of his mind was never better displayed than in his scheme for perfection in the "art of virtue." He says:

I made a little book, in which I allotted a page for each of the virtues. I ruled each page with red ink so as to have seven columns, one for each day of the week, marking each column with a letter for the day. I crossed these columns with thirteen red lines, marking the beginning of each line with the first letter of one of the virtues, on which line, and in its proper column, I might mark by a little black spot every fault I found upon examination to have been committed respecting virtue upon that day.

Form of the pages.

TEMPERANCE.							
Eat not to dullness; Drink not to elevation.							
	S.	M.	T.	W.	T.	F.	S.
T.							
S.	*	*		*		*	
O.	**	*	*		*	*	*
R.			*				
F.		*			*	*	
I.			*				
S.							
J.							
M.							
C.							
T.							
C.							
H.							

This little book is dated July 1, 1733, when Franklin was a little past 27 years of age, and from the form of the pages, which is given, we can read Franklin's progress in the "art of virtue" for one week. His scheme provided for a complete course in thirteen weeks, and four courses in a year, and taking a lesson from the gardener, who does not attempt "to eradicate all the bad herbs at once (which would exceed his reach and strength), but works on one of the beds at a time, and, having accomplished the first, proceeds to a second," so Franklin had hope that "by clearing successively my lines of their spots till in the end, by a number of courses, I should be happy in viewing a clean book after a thirteen week's daily examination."

This self-education in virtue is on the same principle as Mather's "Societies" and Franklin's "Junto," for self-improvement. Being a practical man, Franklin strengthened his little book with maxims and quotations—one from Addison's "Cato," which he had doubtless learned years before in the "Spectator;" another from "Cicero," and a third from the "Proverbs of Solomon:"

Length of days is in her right hand, and in her left hand riches and honor. Her ways are ways of pleasantness, and all her paths are peace.

But not satisfied with mere quotation, he prefixed to his tables of examination for daily use, a little prayer of his own composition, of itself a lesson in self-improvement in the "art of virtue":

O powerful Goodness! bountiful Father! merciful Guide! Increase me in that wisdom which discovers my truest interest. Strengthen my resolutions to perform what that wisdom dictates. Accept my kind offices to thy other children as the only return in my power for thy continual favors to me.

His "Art of Virtue" was the art of promoting the general welfare by self-improvement and self-education in morals. Franklin was a busy man and he found it troublesome to keep an ordinary book which must be renewed from time to time, and which, "by scraping out the marks on the paper of old faults to make room for new ones in a new course, became full of holes," he says:

I transferred my tables and precepts to the ivory leaves of a memorandum book, on which the lines were drawn with red ink, that made a durable stain, and on those lines I marked my faults with a black lead pencil, which marks I could easily wipe out with a wet sponge. After a while I went through one course only in a year, and afterwards only one in several years, till at length I omitted them entirely, being employed in voyages and business abroad, with a multiplicity of affairs that interfered; but I always carried my little book with me.

Whenever we read in Franklin any reference to virtue, and he is constantly referring to the virtues, we must have in mind his "Art of Virtue", and his scheme for self-improvement in morality, for I suppose he thought it illogical for any individual to require a child to form habits of self-education in politics and natural history and not in morality. His scheme of education was after all the practical application of Socrates' famous maxim: "Know thyself." Perhaps the time may come when Franklin's method of self-education in morality shall be the prevailing one in society, but it is hindered at present by the more

popular vicarious method of moral improvement. If every man would make self-education in morals a matter of business, we might be able to trace an influence of Franklin's "Art of Virtue" in our country as great as his influence in founding public libraries. Again and again through his life Franklin mentions his intention of writing and publishing "a great and extensive project that required the whole man to execute," and this was a treatise on the "Art of Virtue."

It was in the consideration of this "great and extensive project," whose treatment he could not find in the books of the world, that he made some observations on one of his readings in the library, May 19, 1731:

That the great affairs of the world, the wars, revolutions, etc., are carried on and affected by parties.

That the view of these parties is their present general interest, or what they take to be such.

That the different views of these different parties occasion all confusion.

That while a party is carrying on a general design, each man has his particular private interest in view.

That as soon as a party has gain'd its general point each member becomes intent upon his particular interest, which, thwarting others, breaks that party into divisions, and occasions much confusion.

That few in public affairs act from a mere view of the good of their country, whatever they may pretend; and, tho' their actings bring real good to their country, yet men primarily considered that their own and their country's interest was united, and did not act from a principle of benevolence.

That fewer still, in public affairs, act with a view to the good of mankind.

There seems to me at present to be great occasion for raising a United Party for Virtue, by forming the virtuous and good men of all nations into a regular body, to be govern'd by suitable good and wise rules, which good and wise men may probably be more unanimous in their obedience to, than common people are to common laws.

I at present think that whoever attempts this aright, and is well qualified, can not fail of pleasing God, and of meeting with success.

If I understand these observations correctly, they signify that Franklin conceived of a moral order, and proceeding on that principle he made scientific deductions, which were that the moral order would obtain if men understood the principles of the moral world, and therefore, he would encourage all men to make self-improvement the basis for such moral investigation and from the mass of these moral experiments deduce the ruling principles of the moral world.

In this mental process which is illustrated in Franklin again and again we see the man of science.

When in 1757 Franklin had engaged passage to England in a New York packet ship, had embarked stores for himself and his son, and was waiting the tedious orders of Lord Loudon, who delayed the sailing of the fleet more than three months, he had occasion to practice his "art of virtue" and illustrate all his capacity for patience and happiness. It was upon this voyage that he remarked:

How imperfect is the art of ship building, that it can never be known till she is tried whether a new ship will or will not be a good sailer, for that the model of a good sailing ship has been exactly followed in a new one, which has proved on the

contrary, remarkably dull. I apprehend that this may partly be occasioned by the different opinions of seamen respecting the modes of lading, rigging, and sailing of a ship; each has its system, and the same vessel, laden by the judgment and orders of one captain, shall sail better or worse than when by the orders of another. Besides, it scarce ever happens that a ship is formed, fitted for the sea, and sailed by the same person. * * * Yet I think a set of experiments might be instituted, first, to determine the most proper form of the hull for swift sailing; next, the best dimensions and properest place for the masts; then the form and quantity of sails, and their position, as the wind may be; and, lastly, the disposition of the lading. This is an age of experiments, and I think a set accurately made and combined would be of great use. I am persuaded, therefore, that ere long some ingenious philosopher will undertake it, to whom I wish success.

His observations on the sailing of ships illustrate his ideas in education: by frequent experiment rules for the conduct of life should be deduced and the dominant idea in all experimentation should be utility.

The idea of experimentation and the deduction of principles from it is the chief idea in Franklin's philosophy of education; he would have natural and mechanic history taught because deductions might be made from such instruction that would improve agriculture and mechanics.

He would have composition taught to the fourth class in his English school because—

Writing one's own language well is the next necessary accomplishment after good speaking. It is the writing master's business to take care that the boys make fair characters, and place them straight and even in the line; but to form their style and even to take care that the stops and capitals are properly disposed is the part of the English master. The boys should be put on writing letters to each other on any common occurrences, and on various subjects, imaginary business, etc., containing little stories, accounts of their late reading, what parts of authors please them, and why; letters of congratulation, of compliment, of request, of thanks, of recommendation, of admonition, of consolation, of expostulation, excuse, etc. In these they should be taught to express themselves clearly, concisely, and naturally, without affected words or high-flown phrases; all their letters to pass through the master's hand, who is to point out the faults, advise the corrections, and commend what he finds right. Some of the best letters published in our own language, as Sir William Temple's, those of Pope and his friends, and some others, might be set before the youth as models, their beauties pointed out and explained by the master, the letters themselves transcribed by the scholar.

Dr. Johnson's *Ethices Elementa*, or *First Principles of Morality*, may now be read by the scholars, and explained by the master, to lay a solid foundation of virtue and piety in their minds. And as this class continues the reading of history, let them now, at proper hours, receive some further instruction in chronology, and in that part of geography (from the mathematical master) which is necessary to understand the maps and globes. They should also be acquainted with the modern names of the places they find mentioned in ancient writers. The exercises of good reading and proper speaking still continued at suitable times.

His fifth class for further improvement in composition were to continue writing letters, and in addition to begin writing—

Little essays in prose, and sometimes in verse; not to make them poets, but for this reason, that nothing acquaints a lad so speedily with variety of exercises as the necessity of finding such words and phrases as will suit the measure, sound, and

rhyme of verse, and at the same time will express the sentiment. These essays should all pass under the master's eye, who will point out their faults and put the writer on correcting them. Where the judgment is not ripe enough for forming new essays, let the sentiment of a Spectator be given, and required to be clothed in the scholar's own words; or the circumstances of some good story, the scholar to find expression. Let them be put sometimes on abridging a paragraph of a diffuse author; sometimes on dilating or amplifying what is wrote more closely. And now let Dr. Johnson's *Noetica*, or *First Principles of Human Knowledge*, containing a logic, or art of reasoning, etc., be read by the youth, and the difficulties that may occur to them be explained by the master. The reading of history and the exercise of good reading and just speaking still continued.

This formula is the epitome of Franklin's own experience; he had written little essays in prose and sometimes in verse as a boy and had learned the art from his uncle who was a prodigious maker of verses.

Franklin, while apprenticed to his brother in Boston, had written some doggerel verses and some street ballads which sold so well that he was persuaded of their value, but his passing inclination to become a poet was smothered by his father's sage remark, characteristic of the whole Franklin family, that "poets were usually very poor people and died beggars."¹

His plan for clothing the sentiments of the Spectator in the scholar's own words was based entirely on his own boyish acquaintance with the Spectator.

In his 16th year he had experienced the exquisite pleasure, of which he spoke more than half a century later, of seeing his first piece in print in the Boston Courant, and though it was not signed Benjamin Franklin, it was his own, that is, as much his own as a paraphrase of a popular author could be. Under the signature of "Silence Dogood," he wrote a number of articles in which he criticises colleges and graduates of colleges, discusses childhood, marriage, and widowhood, and in the language of "affected words and high-flown phrases delivered himself of his thought." These articles in the old Boston Courant were doubtless in Franklin's mind when he prescribed the kind of composition useful for the classes in the English school. He had educated himself in that way.

His scientific mind recognized the value of correct deductions, and therefore logic took a primary place in his system of education. His first class should be taught the English grammar rules; his second class should construe the parts of speech and sentences, and recur to the rules of grammar; his third class should learn the elements of rhetoric, and his fifth class should study the art of reasoning in Dr. Johnson's *First Principles of Human Knowledge*, because without practice in the art of reasoning correct deductions in life could not be made. Franklin's introduction of logic into the studies of the English school was due not only to the tendency of his own mind, but also to the results of his own experience. At 15, soon after awakening to

¹ See a specimen of Franklin's verses, p. 118.

his ignorance of figures, he read Locke's *Human Understanding* and the *Art of Thinking*, by Messrs. du Port Royal, which evidently greatly aided him in the orderly examination of phenomena and in making correct deductions from his experiments. He says in drawing up his *Art of Virtue* that he found himself "incorrigible with respect to order." He was deficient in what might now be called system, and one of the serious criticisms made upon him while minister to France was the confusion of the affairs in his office. Self-study had revealed to him this defect, and doubtless one of the reasons for the introduction of logic and rules of grammar and rhetoric into the studies of childhood was to remedy in others the defect from which he had suffered himself.

It should be said of Franklin that his scheme for self-education in morality was the source of his own regeneration, and after the formulation of the scheme of his *Art of Virtue* was clearly before his mind, he was probably as free from faults as any man of his times. The utility of his ideas in morals was proven in his own life.

It was at this time that he prepared for his own use his "Articles of Belief and Acts of Religion," a creed, a prayer book, and a litany, which, he tells us, he continued to use for twenty years. His practice of the "art of virtue," confirmed his opinion that, as the object of religion was to promote virtue, religion was useful to mankind, and that the various religious sects of his times contributed on the whole to the happiness and virtue of their members. It should be said that Franklin lived during one of the great religious revivals of history under the preaching of Whitefield. It would be interesting to trace the influence of the revival of religion under Wesley and Whitefield upon the education of Americans.¹

Whitefield was better known to Franklin than to any other American. The great preacher came to Philadelphia in 1739 and threw the whole city into a ferment. He was as unlike Franklin as Franklin was unlike Dr. Johnson. He found in Franklin a true friend, a genial host, and a publisher. Philadelphia was tolerant and Whitefield had no difficulty in gathering an audience without the interference of the authorities. Tradition tells us of the multitudes who thronged to hear the great preacher. Franklin was greatly moved by his preaching, but not persuaded to adopt the preacher's doctrines. It having been found inconvenient to assemble in the open air the crowds who came to hear Whitefield, it was proposed to erect a building 100 feet long and 70 broad, which should be for the accommodation of the inhabitants of the town who might care to hear any preacher on any subject.

Whitefield had changed the manners of Philadelphia. Franklin records how, under the influence of Whitefield's preaching, "from being thoughtless or indifferent about religion, it seems as if all the world were growing religious, so that one could not walk through the town

¹ The spread of Methodism in America and the founding of seminaries and colleges by that denomination present a pleasing subject for historical investigation.

in the evening without hearing psalms sung in different families in every street." The eloquence of Whitefield and the multitudinous demand of the people for accommodations to hear him were the occasion for the building of a suitable meeting house, which also became a few years later the first building used by the Academy of Philadelphia, later the College of Philadelphia, now the University of Pennsylvania.

Franklin's love of natural philosophy prompted him to use Whitefield's voice as the means of an experiment in acoustics.

He preached [says Franklin] one evening from the top of the court-house steps, which are in the middle of Market street, and on the west side of Second street, which crosses it at right angles. Both streets were filled with hearers to a considerable distance. Being among the hindmost in Market street, I had the curiosity to learn how far he could be heard, by retiring backwards down the street towards the river; and I found his voice distinct till I came near Front street, when some noise in that street obscured it. Imagining, then, a semicircle, of which my distance would be the radius, and that it were filled with auditors, to each of whom I allowed 2 square feet, I computed that he might well be heard by more than thirty thousand. This reconciled me to the newspaper accounts of his having preached to 25,000 people in the fields, and to the ancient histories of generals haranguing whole armies, of which I had sometimes doubted.¹

This comment on Whitefield admits us into a closer knowledge of Franklin's self-education. In his provision for the lessons of the second class in the English schools he advises lessons made up of a piece of a sermon, a general's speech to his soldiers, and in the wonderful voice of Whitefield he had experimentally proved that the great speeches made by generals to their soldiers, such as he had read in Plutarch's Lives, could be heard by the soldiery. I suppose that Whitefield was the more interesting to Franklin because he demonstrated that the speeches of Cyrus might have been heard by his troops, and so illustrated some of the properties of sound.

For the sixth class Franklin prescribed a continuation of the preceding studies in—

History, rhetoric, logic, moral and natural philosophy; the best English authors, * * * as Tillotson, Milton, Locke, Addison, Pope, Swift; the higher papers in the Spectator and Guardian; the best translations of Homer, Virgil, and Horace, of Telemachus; Travels of Cyrus, etc.

The hours of the day were to be divided and disposed in such a manner that some classes might be "with the writing master, improving their hands; others with the mathematical master, learning arithmetic, accounts, geography, use of the globes, drawing, mechanics, etc., while the rest are in the English school under the English master's care." Here is the substance of the working programme familiar in its development to all teachers at the present time.

It will be noticed that Franklin mentions drawing as a study for the sixth class, in which he anticipates one of the most important elements of modern education, and, by alternation in the disposition of the

¹ It is said that some words uttered by Whitefield were distinctly heard by people across the Delaware.

studies, he anticipates the programme of our manual training schools, which divide the school day between literary study (language, mathematics, history, science, etc.) and the technical industrial studies (free-hand, machine, and architectural drawing, woodworking, smithing, etc.); indeed, Franklin's scheme for the education of youth anticipates the ideas of the modern supporters of manual training.

Throughout his plan he develops a system of incentives to excellence. In his provision for the first class he says in order to improve their orthography:

Perhaps the latter is best done by pairing the scholars; two of those nearest equal in their spelling to be put together. Let these strive for victory; each propounding ten words every day to the other to be spelled. He that spells truly most of the other's words is the victor for that day; he that is victor most days of the month to obtain a prize, a pretty, neat book of some kind, useful in their future studies.

The system of prizes was a favorite one with Franklin,¹ he thought that it "fixes the attention of the children" and he continually refers to it throughout his life. In dealing with men he acted upon the principle of incentives to action. As the highest encouragement to the classes he suggests that—

Once a year let there be public exercises in the hall, the trustees and citizens present. Then let fine gilt books be given as prizes to such boys as distinguish themselves and excel the others in any branch of learning, making three degrees of comparison; giving the best prize to him that performs best, a less valuable one to him that comes up next to the best, and another to the third; commendations, encouragement, and advice to the rest keeping up their hopes that by industry they may excel another time. The names of those that obtain the prize to be yearly printed in a list.

The intimate knowledge of human nature which is illustrated in this little scheme shows how much Franklin had learned from the printing business; that "fine gilt books" are more popular simply because of their binding and style rather than for their contents. The material success of subscription publishing houses attests the accuracy of Franklin's discrimination. He would appeal to the eye as well as to the "understandings of youth." His division of the prizes into three classes and the publication of the names of the winners suggests that in educational matters Franklin would apply the fundamental principles at the base of Adam Smith's Economics, that every man will most willingly pursue his own substantial interest.

Franklin had learned by experience the power of incentive in study. Soon after his projection of his Art of Virtue he became dissatisfied with the mere reading of books and began the study of languages. He had long been fond of chess, and he tells us how he combined his love of language and love of chess by fixing a condition of the game that—

The victor in every game should have a right to impose a task either in parts of the grammar to be got by heart, or in translations, etc., which tasks the vanquished shall perform upon honor before our next meeting; as we played pretty equally, we thus beat one another into that language.

¹He incorporated in his will a provision for prizes in the public schools of Boston. (See *infra*, p. 119.)

He took up the study of languages as he had taken up arithmetic and English composition, he taught himself. In attempting to learn the modern languages his attention was called again to the Latin tongue which he had studied in an elementary way in his childhood for one year in a Latin school. He says:

But when I had attained an acquaintance with the French, Italian, and Spanish, I was surprised to find on looking over a Latin Testament, that I understood more of that language than I had imagined; which encouraged me to apply myself again to the study of it, and I met with the more success, as those preceding languages had greatly smoothed my way. From these circumstances, I have thought there was some inconsistency in our common mode of teaching languages. We are told that it is proper to begin first with Latin, and having acquired that, it will be more easy to attain those modern languages which are derived from it; and yet we do not begin with the Greek, in order more easily to acquire the Latin. It is true that if we can clamber and get to the top of a staircase without using the steps, we shall more easily gain them in descending; but certainly if we begin with the lowest, we shall with more ease ascend to the top; and I would therefore offer it to the consideration of those who superintend the education of our youth, whether—since many of those who begin with the Latin, quit the same after spending some years without having made any great proficiency, and what they have learned becomes almost useless, so that their time has been lost—it would not have been better to have begun with the French, proceeding to the Italian and Latin. For, though, after spending the same time they should quit the study of languages and never arrive at the Latin, they would however, have acquired another tongue or two that being in modern use might be serviceable to them in common life.

This observation is the substance of all discussions on teaching modern languages which have been made since Franklin's day. He arrived at his opinions by his own experience and he incorporated them in his Plan for the Education of Youth in Pennsylvania, repeatedly referred to them, and in one of the last papers of his life defended them.¹

In his proposals Relative to the Education of Youth in Pennsylvania, written in 1749, Franklin has something to say of the study of languages not exactly conforming with his ideas concerning the study of modern languages. He had arrived at his conclusion of the superior advantages of the study of modern languages, even to the exclusion of Greek and Latin, by his own self-education at 30 years of age in French, Italian, and Spanish. His Proposals Relative to the Education of Youth in Pennsylvania were written sixteen years later, and the departure from his own opinion on the study of languages set forth in the Proposals is to be attributed to the necessary compromise which Franklin had to make in order to get the Philadelphia Academy founded. There will be occasion to refer to these Proposals more particularly later on.

In his plan for an English school, providing for six classes, to which reference has frequently been made, Franklin concludes as follows:

Thus instructed, youth will come out of this school fitted for learning any business, calling, or profession, except such wherein languages are required; and, though

¹ See observations Relative to the Intention of the original founders of the Academy in Philadelphia, June, 1789.

unacquainted with any ancient or foreign tongue, they will be masters of their own, which is of more immediate and general use, and withal will have attained many other valuable accomplishments; the time usually spent in acquiring those languages, often without success, being here employed in laying such a foundation of knowledge and ability as, properly improved, may qualify them to pass through and execute the several offices of civil life with advantage and reputation to themselves and country.

I think I see in Franklin's plan for an English school his idea of a universal scheme of education applicable to such a country as ours. It should not be inferred that Franklin was unfriendly to higher education. He knew very well the practical importance of public education, and in providing for the general instruction of all the children of the land he would introduce those subjects and methods which would conduce to the largest public utility. We must not forget that in Franklin's time free public schools were not thought of,¹ that no minister of state, no legislature had formulated a scheme of general education at the expense of the state, but that education was still an individual matter, and the means for pursuing it existed only in private schools.

SKETCH OF AN ENGLISH SCHOOL.

[For the consideration of the trustees of the Philadelphia Academy.]

It is expected that every scholar, to be admitted into this school, be at least able to pronounce and divide the syllables in reading, and to write a legible hand. None to be received that are under — years of age.

FIRST OR LOWEST CLASS.

Let the first class learn the English Grammar Rules, and at the same time let particular care be taken to improve them in orthography. Perhaps the latter is best done by pairing the scholars, two of those nearest equal in their spelling to be put together. Let these strive for victory, each propounding ten words every day to the other to be spelled. He that spells truly most of the other's words is victor for that day; he that is victor most days of the month to obtain a prize, a pretty, neat book of some kind, useful in their future studies. This method fixes the attention of children extremely to the orthography of words, and makes them good spellers very early. It is a shame for a man to be so ignorant of this little art in his own language as to be perpetually confounding words of like sound and different significations, the consciousness of which defect makes some men, otherwise of good learning and understanding, averse to writing even a common letter.

Let the pieces read by the scholars in this class be short, such as Croxall's Fables, and little stories. In giving the lesson let it be read to them; let the meaning of the difficult words in it be explained to them, and let them come over by themselves before they are called to read to the master or usher, who is to take particular care that they do not read too fast, and that they duly observe the stops and pauses. A vocabulary of the most usual difficult words might be formed for their use with explanations, and they might daily get a few of those words and explanations by heart, which would a little exercise their memories, or at least they might write a number of them in a small book for the purpose, which would help to fix the meaning of those words in their minds and at the same time furnish every one with a little dictionary for his future use.

¹An important and, in its influence, a far-reaching exception is to be made for New England. See account of John Adams's plan for public education and the constitution of Massachusetts, 1780, *infra*, p. 173.

THE SECOND CLASS.

To be taught reading with attention, and with proper modulations of the voice, according to the sentiment and the subject.

Some short pieces, not exceeding the length of a Spectator, to be given this class for lessons (and some of the easier Spectators would be very suitable for the purpose). These lessons might be given every night as tasks, the scholars to study them against the morning. Let it then be required of them to give an account, first, of the parts of speech and construction of one or two sentences. This will oblige them to recur frequently to their grammar and fix its principal rules in their memory. Next, of the intention of the writer, or the scope of the piece, the meaning of each sentence, and of every uncommon word. This would early acquaint them with the meaning and force of words, and give them that most necessary habit of reading with attention.

The master then to read the piece with the proper modulations of voice, due emphasis, and suitable action, where action is required, and put the youth on imitating his manner.

Where the author has used an expression not the best, let it be pointed out, and let his beauties be particularly remarked to the youth.

Let the lessons for reading be varied, that the youth may be made acquainted with good style of all kinds, in prose and verse, and the proper manner of reading each kind; sometimes a well-told story, a piece of a sermon, a general's speech to his soldiers, a speech in a tragedy, some part of a comedy, an ode, a satire, a letter, blank verse, Hudibrastic, heroic, etc. But let such lessons be chosen for reading as contain some useful instruction, whereby the understanding or morals of the youth may at the same time be improved.

It is required that they should first study and understand the lessons before they are put upon reading them properly, to which end each boy should have an English dictionary to help him over difficulties. When our boys read English to us we are apt to imagine they understand what they read, because we do, and because it is their mother tongue; but they often read as parrots speak, knowing little or nothing of the meaning; and it is impossible a reader should give the due modulation to his voice, and pronounce properly, unless his understanding goes before his tongue and makes him master of the sentiment. Accustoming boys to read aloud what they do not first understand is the cause of those even, set tones so common among readers, which, when they have once got a habit of using, they find so difficult to correct; by which means among fifty readers we scarcely find a good one. For want of good reading pieces published with a view to influence the minds of men, for their own or the public benefit, lose half their force. Were there but one good reader in a neighborhood a public orator might be heard throughout a nation with the same advantages and have the same effect upon his audience as if they stood within the reach of his voice.

THE THIRD CLASS.

To be taught speaking properly and gracefully, which is near akin to good reading, and naturally follows it in the studies of youth. Let the scholars of this class begin with learning the elements of rhetoric from some short system, so as to be able to give an account of the most useful tropes and figures. Let all their bad habits of speaking, all offenses against good grammar, all corrupt or foreign accents, and all improper phrases be pointed out to them. Short speeches from the Roman or other history, or from the parliamentary debates, might be got by heart, and delivered with the proper action, etc. Speeches and scenes in our best tragedies and comedies (avoiding everything that could injure the morals of youth) might likewise be got by rote, and the boys exercised in delivering or acting them, great care being taken to form their manner after the truest models.

For their further improvement, and a little to vary their studies, let them now begin to read history, after having got by heart a short table of the principal epochs in chronology. They may begin with Rollin's Ancient and Roman histories, and proceed at proper hours, as they go through the subsequent classes, with the best histories of our own nation and colonies. Let emulation be excited among the boys by giving, weekly, little prizes, or other small encouragements, to those who are able to give the best account of what they have read as to time, places, names of persons, etc. This will make them read with attention, and imprint the history well in their memories. In remarking on the history, the master will have fine opportunities of instilling instruction of various kinds and improving the morals as well as the understandings of youth.

The natural and mechanic history contained in the *Spectacle de la Nature* might also be begun in this class, and continued through the subsequent classes, by other books of the same kind; for next to the knowledge of duty, this kind of knowledge is certainly the most useful as well as the most entertaining. The merchant may thereby be enabled better to understand many commodities in trade; the handicraftsman to improve his business by new instruments, mixtures, and materials; and frequently hints are given for new manufactures, or new methods of improving land, that may be set on foot greatly to the advantage of a country.

THE FOURTH CLASS.

To be taught composition. Writing one's own language well is the next necessary accomplishment after good speaking. It is the writing master's business to take care that the boys make fair characters and place them straight and even in the line; but to form their style, and even to take care that the stops and capitals are properly disposed, is the part of the English master. The boys should be put on writing letters to each other on any common occurrences, and on various subjects, imaginary business, etc., containing little stories, accounts of their late reading, what parts of authors please them, and why; letters of congratulation, of compliment, of request, of thanks, of recommendation, of admonition, of consolation, of expostulation, excuse, etc. In these they should be taught to express themselves clearly, concisely, and naturally, without affected words or high-flown phrases; all their letters to pass through the master's hand, who is to point out the faults, advise the corrections, and commend what he finds right. Some of the best letters published in our own language, as Sir William Temple's, those of Pope and his friends, and some others might be set before the youth as models, their beauties pointed out and explained by the master, the letters themselves transcribed by the scholar.

Dr. Johnson's *Ethices Elementa*, or *First Principles of Morality*, may now be read by the scholars and explained by the master, to lay a solid foundation of virtue and piety in their minds, and as this class continues the reading of history let them now, at proper hours, receive some further instruction in chronology and in that part of geography (from the mathematical master) which is necessary to understand the maps and globes. They should also be acquainted with the modern names of the places they find mentioned in ancient writers; the exercises of good reading and proper speaking still continued at suitable times.

FIFTH CLASS.

To improve the youth in composition they may now, besides continuing to write letters, begin to write little essays in prose, and sometimes in verse, not to make them poets, but for this reason, that nothing acquaints a lad so speedily with variety of expression as the necessity of finding such words and phrases as will suit the measure, sound, and rhyme of verse and at the same time well express the sentiment. These essays should all pass under the master's eye, who will point out their faults and put the writer on correcting them. Where the judgment is not ripe

enough for forming new essays, let the sentiment of a *Spectator* be given and required to be clothed in the scholar's own words; or the circumstances of some good story, the scholar to find expression. Let them be put sometimes on abridging a paragraph of a diffuse author; sometimes on dilating or amplifying what is wrote more closely. And now let Dr. Johnson's *Noetica*, or *First Principles of Human Knowledge*, containing a logic, or art of reasoning, etc., be read by the youth, and the difficulties that may occur to them be explained by the master; the reading of history and the exercises of good reading and just speaking still continued.

SIXTH CLASS.

In this class, besides continuing the studies of the preceding in history, rhetoric, logic, moral and natural philosophy, the best English authors may be read and explained, as Tillotson, Milton, Locke, Addison, Pope, Swift, the higher papers in the *Spectator* and *Guardian*, the best translations of Homer, Virgil, and Horace, of *Telemachus*, *Travels of Cyrus*, etc.

Once a year let there be public exercises in the hall, the trustees and citizens present. Then let fine gilt books be given as prizes to such boys as distinguish themselves and excel the others in any branch of learning, making three degrees of comparison; giving the best prize to him that performs the best, a less valuable one to him that comes up next to the best, and another to the third, commendations, encouragement, and advice to the rest, keeping up their hopes that by industry they may excel another time. The names of those that obtain the prizes to be yearly printed in a list.

The hours of each day are to be divided and disposed in such a manner as that some classes may be with the writing master, improving their hands; others with the mathematical master, learning arithmetic, accounts, geography, use of the globes, drawing, mechanics, etc., while the rest are in the English school under the English master's care.

Thus instructed youth will come out of this school fitted for learning any business, calling, or profession, except such wherein languages are required, and, though unacquainted with any ancient or foreign tongue, they will be masters of their own, which is of more immediate and general use, and withal will have attained many other valuable accomplishments; the time usually spent in acquiring those languages, often without success, being here employed in laying such a foundation of knowledge and ability as, properly improved, may qualify them to pass through and execute the several offices of civil life with advantage and reputation to themselves and country.

OBSERVATIONS RELATIVE TO THE INTENTIONS OF THE ORIGINAL FOUNDERS OF THE ACADEMY IN PHILADELPHIA, JUNE, 1789.

As the English school in the Academy has been and still continues to be a subject of dispute and discussion among the trustees since the restitution of the charter, and it has been proposed that we should have some regard to the original intention of the founders in establishing that school, I beg leave, for your information, to lay before you what I know of the matter originally and what I find on the minutes relating to it, by which it will appear how far the design of that school has been adhered to or neglected.

Having acquired some little reputation among my fellow-citizens by projecting the public library in 1732, and obtaining the subscriptions by which it was established, and by proposing and promoting with success sundry other schemes of utility in 1749, I was encouraged to hazard another project, that of a public education for our youth. As in the scheme of the library I had provided only for English books, so in this new scheme my ideas went no further than to procure the means of a good English education. A number of my friends to whom I communicated the proposal concurred with me in these ideas; but Mr. Allen, Mr. Francis, Mr. Peters, and some

other persons of wealth and learning, whose subscriptions and countenance we should need, being of opinion that it ought to include the learned languages, I submitted my judgment to theirs, retaining, however, a strong prepossession in favor of my first plan, and resolving to preserve as much of it as I could, and to nourish the English school by every means in my power.

Before I went about to procure subscriptions, I thought it proper to prepare the minds of the people by a pamphlet, which I wrote, and printed, and distributed with my newspapers, gratis. The title was, *Proposals Relating to the Education of Youth in Pennsylvania*. I happen to have preserved one of them; and, by reading a few passages, it will appear how much the English learning was insisted upon in it: and I had good reasons to know that this was a prevailing part of the motives for subscribing with most of the original benefactors.¹ I met with but few refusals in soliciting the subscriptions; and the sum was the more considerable, as I had put

‘That the rector be a man of good understanding, good morals, diligent and patient, learned in the languages and sciences, and a correct, pure speaker and writer of the English tongue; to have such tutors under him as shall be necessary.

The English language might be taught by grammar; in which some of our best writers, as Tillotson, Addison, Pope, Algernon Sidney, Cato’s Letters, etc., should be classics; the styles principally to be cultivated being the clear and the concise. Reading should also be taught, and pronouncing properly, distinctly, emphatically; not with an even tone, which underdoes, nor a theatrical, which overdoes, nature.

Mr. Locke, speaking of Grammar (p. 252), says that, “To those, the greatest part of whose business in this world is to be done with their tongue, and with their pens, it is convenient, if not necessary, that they should speak properly and correctly, whereby they may let their thoughts into other men’s minds the more easily, and with the greater impression. Upon this account it is, that any sort of speaking, so as will make him be understood, is not thought enough for a gentleman. He ought to study grammar among the other helps of speaking well; but it must be the grammar of his own tongue, of the language he uses, that he may understand his own country speech nicely, and speak it properly, without shocking the ears of those it is addressed to with solecisms and offensive irregularities. And to this purpose grammar is necessary; but it is the grammar only of their own proper tongues, and to those who would take pains in cultivating their language and perfecting their styles. Whether all gentlemen should not do this I leave to be considered; since the want of propriety and grammatical exactness is thought very misbecoming one of that rank, and usually draws on one, guilty of such faults, the imputation of having had a lower breeding and worse company than suit with his quality. If this be so (as I suppose it is), it will be matter of wonder why young gentlemen are forced to learn the grammars of foreign and dead languages, and are never once told of the grammar of their own tongues. They do not so much as know there is any such thing, much less is it made their business to be instructed in it. Nor is their own language ever proposed to them as worthy their care and cultivating, though they have daily use of it, and are not seldom in the future course of their lives judged of by their handsome or awkward way of expressing themselves in it. Whereas the languages, whose grammars they have been so much employed in, are such as probably they shall scarce ever speak or write; or, if upon occasion this should happen, they should be excused for the mistakes and faults they make in it. Would not a Chinese, who took notice of this way of breeding, be apt to imagine that all our young gentlemen were designed to be teachers and professors of the dead languages of foreign countries, and not to be men of business in their own?”

The same author adds (p. 255), “That if grammar ought to be taught at any time, it must be to one that can speak the language already; how else can he be taught the grammar of it? This at least is evident from the practice of the wise and learned nations among the ancients. They made it a part of education, to cultivate their own, not foreign tongues. The Greeks counted all other nations barbarous, and had

the contribution on this footing, that it was not to be immediate, and the whole paid at once, but in parts, a fifth annually during five years. To put the machine in motion, twenty-four of the principal subscribers agreed to take upon themselves the trust; and a set of constitutions for their government, and for the regulation of the schools, were drawn up by Mr. Francis and myself, which were signed by us all, and printed, that the public might know what was to be expected.

I wrote also a paper entitled, *Idea of an English School*, which was printed and afterwards annexed to Mr. Peter's Sermon, preached at the opening of the Academy. This paper was said to be for the consideration of the trustees; and the expectation of the public, that the idea might in a great measure be carried into execution, contributed to render the subscriptions more liberal as well as more general. I mention my concern in these transactions, to show the opportunity I had of being well informed in the points I am relating.

a contempt for their languages. And though the Greek learning grew in credit among the Romans toward the end of their commonwealth, yet it was the Roman tongue that was made the study of their youth. Their own language they were to make use of, and therefore it was their own language they were instructed and exercised in." And (p. 281), "There can scarce be a greater defect," says he, "in a gentleman, than not express himself well either in writing or speaking. But yet I think I may ask the reader whether he doth not know a great many who live upon their estates, and so, with the name, should have the qualities of gentlemen, who can not so much as tell a story as they should, much less speak clearly and persuasively in any business. This I think not to be so much their fault as the fault of their education." Thus far Locke.

Monsieur Rollin reckons the neglect of teaching their own tongue a great fault in the French universities. He spends a great part of his first volume of *Belles Lettres* on that subject; and lays down some excellent rules or methods of teaching French to Frenchmen grammatically, and making them masters therein, which are very applicable to our language, but too long to be inserted here. He practiced them on the youth under his care with great success.

Mr. Hutchinson (*Dial.*, p. 297) says: "To perfect them in the knowledge of their mother tongue they should learn it in the grammatical way, that they not only speak it purely, but be able both to correct their own idiom and afterwards enrich the language on the same foundation."

Dr. Turnbull, in his *Observations on a Liberal Education*, says (p. 262): "The Greeks, perhaps, made more early advances in the most useful sciences than any youth have done since, chiefly on this account, that they studied no other language but their own. This, no doubt, saved them very much time; but they applied themselves carefully to the study of their own language, and were early able to speak and write it in the greatest perfection. The Roman youth, though they learned the Greek, did not neglect their own language, but studied it more carefully than we now do Greek and Latin, without giving ourselves any trouble about our own tongue."

Monsieur Simon, in an elegant discourse of his among the *Memoirs of the Academy of Belles Lettres*, at Paris, speaking of the stress the Romans laid on purity of language and graceful pronunciation, adds: "May I here make a reflection on the education we commonly give our children? It is very remote from the precepts I have mentioned. Hath the child arrived to 6 or 7 years of age he mixes with a herd of ill-bred boys at school, where, under the pretext of teaching him Latin, no regard is had to his mother tongue. And what happens? What we see every day. A young gentleman of 18 who has had this education can not read. For to articulate the words and join them together I do not call reading unless one can pronounce well, observe all proper stops, vary the voice, express the sentiment, and read with a delicate intelligence. Nor can he speak a jot better. A proof of this is that he can not write ten lines without committing gross faults, and because he did not learn his

These constitutions are upon record in your minutes; and, although the Latin and Greek are by them to be taught, the original idea of a complete English education was not forgotten, as will appear by the following extracts:

Page 1.—"The English tongue is to be taught grammatically, and as a language."

Page 4.—In reciting the qualification of the person to be appointed rector, it is said, "that great regard is to be had to his polite speaking, writing, and understanding the English tongue."

own language well in his early years he will never know it well. I except a few, who being afterwards engaged by their profession or their natural taste, cultivate their minds by study. And yet, even they, if they attempt to write, will find by the labor what composition costs them, what a loss it is not to have learned their language in proper season. Education among the Romans was upon a quite different footing. Masters of rhetoric taught them early the principles, the difficulties, the beauties, the subtilties, the depths, the riches of their own language. When they went from these schools they were perfect masters of it; they were never at a loss for proper expression, and I am much deceived if it was not owing to this that they produced such excellent works with so marvelous facility."

Pliny, in his letter to a lady on choosing a tutor for her son, speaks of it as the most material thing in his education that he should have a good Latin master of rhetoric, and recommends Julius Genitor for his eloquent, open, and plain faculty of speaking. He does not advise her to a Greek master of rhetoric, though the Greeks were famous for that science, but to a Latin master because Latin was the boy's mother tongue. In the above quotation from Monsieur Simon we see what was the office and duty of the master of rhetoric.

To form their style they should be put on writing letters to each other, making abstracts of what they read; or writing the same things in their own words; telling or writing stories lately read, in their own expressions. All to be revised and corrected by the tutor, who should give his reasons, explain the force and import of words, etc.

This Mr. Locke recommends (*Educ.*, p. 284), and says: "The writing of letters has so much to do in all the occurrences of human life that no gentleman can avoid slowing himself in this kind of writing. Occasions will daily force him to make this use of his pen, which, besides the consequence that, in his affairs, the well or ill managing it often draws after it, always lays him open to a severer examination of his breeding, sense, and abilities than oral discourses, whose transient faults, dying for the most part with the sound that gives them life, and so not subject to a strict review, more easily escape observation and censure."

He adds: "Had the methods of education been directed to their right end, one would have thought this so necessary a part could not have been neglected, whilst themes and verses in Latin, of no use at all, were so constantly everywhere pressed, to the racking of children's invention beyond their strength, and hindering their cheerful progress by unnatural difficulties. But custom has so ordained it, and who dares disobey? And would it not be very unreasonable to require of a learned country schoolmaster (who has all the tropes and figures in Farnaby's Rhetoric at his fingers' ends) to teach his scholar to express himself handsomely in English, when it appears to be so little his business or thought that the boy's mother (despised, 'tis like, as illiterate for not having read a system of logic or rhetoric) outdoes him in it?"

"To speak and write correctly gives a grace and gains a favorable attention to what one has to say. And since 'tis English that an Englishman will have constant use of, that is the language he should chiefly cultivate and wherein most care should be taken to polish and perfect his style. To speak or write better Latin than English may make a man be talked of; but he will find it more to his purpose to express himself well in his own tongue, that he uses every moment, than to have the vain commendations of others for a very insignificant quality. This I find universally neglected,

"The rector was to have 200 pounds a year, for which he was to be obliged to teach 20 boys, without any assistance (and twenty-five more for every usher provided for him), the Latin and Greek languages; and at the same time instruct them in history, geography, chronology, logic, rhetoric, and the English tongue."

"The rector was also, on all occasions consistent with his duty in the Latin school, to assist the English master in improving the youth under his care."

Page 5.—"The trustees shall, with all convenient speed, contract with any person

nor no care taken anywhere to improve young men in their own language, that they may thoroughly understand and be masters of it. If anyone among us have a facility or purity more than ordinary in his mother tongue, it is owing to chance, or his genius, or anything, rather than to his education or any care of his teacher. To mind what English his pupil speaks or writes is below the dignity of one bred up among Greek and Latin, though he have but little of them himself. These are the learned languages, fit only for learned men to meddle with and teach; English is the language of the illiterate and vulgar. Though the great men among the Romans were daily exercising themselves in their own language, and we find yet upon the record the names of orators who taught some of their Emperors Latin, though it were their mother tongue, 'tis plain the Greeks were yet more nice in theirs. All other speech was barbarous to them but their own, and no foreign language appears to have been studied or valued amongst that learned and acute people, though it be past doubt that they borrowed their learning and philosophy from abroad."

To the same purpose writes a person of eminent learning in a letter to Dr. Turnbull. "Nothing, certainly," says he, "can be of more service to mankind than a right method of educating the youth, and I should be glad to hear—to give an example of the great advantage it would be to the rising age and to our nation. When our public schools were first established the knowledge of Latin was thought learning; and he that had a tolerable skill in two or three languages, though his mind was not enlightened by any real knowledge, was a profound scholar. But it is not so at present; and people confess that men may have obtained a perfection in these and yet continue deeply ignorant. The Greek education was of another kind" (which he describes in several particulars, and adds): "they studied to write their own tongue more accurately than we do Latin and Greek. But where is English taught at present? Who thinks it of use to study correctly that language which he is so used to every day in his life, be his station ever so high or ever so insignificant. It is in this the nobility and gentry defend their country, and serve their prince in Parliament; in this the lawyers plead, the divines instruct, and all ranks of people write their letters and transact all their affairs; and yet who thinks it worth while his learning to write this even accurately, not to say politely? Everyone is suffered to form his style by chance; to imitate the first wretched model which falls in his way before he knows what is faulty or can relish the beauties of a just simplicity. Few think their children qualified for a trade till they have been whipped at a Latin school for five or six years to learn a little of that which they are obliged to forget, when in those years right education would have improved their minds and taught them to acquire habits of writing their own language easily under right direction; and this would have been useful to them as long as they lived." (*Introd.*, pp. 3-5.)

To form their pronunciation, they may be put on making declamations, repeating speeches, delivering orations, etc.; the tutor assisting at the rehearsals, teaching, advising, correcting their accent, etc. By pronunciation is here meant the proper modulation of the voice to suit the subject, with due emphasis, action, etc. In delivering a discourse in public designed to persuade, the manner, perhaps, contributes more to success than either the matter or method. Yet the two latter seem to engross the attention of most preachers and other public speakers, and the former to be almost totally neglected.

that offers, whom they shall judge most capable of teaching the English tongue grammatically and as a language, history, geography, chronology, logic, and oratory; which person shall be styled the English master."

The English master was to have 100 pounds a year, for which he was to teach, without any assistance, forty scholars the English tongue grammatically; and at the same time instruct them in history, geography, chronology, logic, and oratory; and sixty scholars more for every usher provided for him.

It is to be observed, in this place, that here are two distinct courses in the same study—that is, of the same branches of science, viz., history, geography, chronology, logic, and oratory—to be carried on at the same time, but not by the same tutor or master. The English master is to teach his scholars all those branches of science, and also the English tongue grammatically, as a language. The Latin master is to teach the same sciences to his boys, besides the Greek and Latin. He was also to assist the English master occasionally, without which, and his general care in the government of the schools, the giving him double salary seems not well accounted for. But here are plainly two distinct schools or courses of education provided for. The Latin master was not to teach the English scholars logic, rhetoric, etc.; that was the duty of the English master; but he was to teach those sciences to the Latin scholars. We shall see, hereafter, how easily this original plan was defeated and departed from.

When the constitutions were first drawn, blanks were left for the salaries and for the number of boys the Latin master was to teach. The first instance of partiality in favor of the Latin part of the institution was in giving the title of rector to the Latin master and no title to the English one. But the most striking instance was, when we met to sign, and the blanks were first to be filled up, the votes of a majority carried it to give twice as much salary to the Latin master as to the English, and yet require twice as much duty from the English master as from the Latin, viz., £200 to the Latin master to teach 20 boys, £100 to the English master to teach 40! However, the trustees who voted these salaries, being themselves by far the greatest subscribers, though not the most numerous, it was thought they had a kind of right to predominate in money matters, and those who had wished an equal regard might have been shown to both schools, submitted, though not without regret, and at times some little complaining, which, with their not being able in nine months to find a proper person for English master who would undertake the office for so low a salary, induced the trustees at length, viz, in July, 1750, to offer £50 more.

Another instance of the partiality above mentioned was in the March preceding, when £100 sterling was voted to buy Latin and Greek books, maps, drafts, and instruments for the use of the Academy and nothing for the English books.

The great part of the subscribers, who had the English education chiefly in view, were, however, soothed into a submission to these partialities, chiefly by the expectation given them by the constitution, viz, that the trustees would make it their pleasure, and in some degree their business, to visit the Academy often, to encourage and countenance the youth, look on the students as in some measure their own children, treat them with familiarity and affection; and, when they have behaved well, gone through their studies, and are to enter the world, the trustees shall zealously unite and make all the interest that can be made to promote and establish them, whether in business, offices, marriages, or any other thing for their advantage, preferable to all other persons whatsoever, even of equal merit.

These splendid promises dazzled the eyes of the public. The trustees were most of them the principal gentlemen of the province. Children taught in other schools had no reason to expect such powerful patronage. The subscribers had placed such entire confidence in them as to leave themselves no power of changing them if their conduct of the plan should be disapproved; and so, in hopes of the best, all these partialities were submitted to.

Near a year passed before a proper person was found to take charge of the English school. At length Mr. Dove, who had been many years master of a school in England, and had come hither with an apparatus for giving lectures in experimental philosophy, was prevailed with by me, after his lectures were finished, to accept that employment for the salary offered, though he thought it too scanty. He had a good voice, read perfectly well, with proper accent and just pronunciation, and his method of communicating habits of the same kind to his pupils was this: When he gave a lesson to one of them, he always first read it to him aloud, with all the different modulations of voice that the subject and the sense required. These the scholars, in studying and repeating the lesson, naturally endeavored to imitate; and it was really surprising to see how soon they caught his manner, which convinced me and others who frequently attended his school, that, though bad tones and manners in reading are, when once acquired, rarely, with difficulty, if ever cured, yet, when none have been already formed, good ones are as easily learned as bad. In a few weeks after opening his school, the trustees were invited to hear the scholars read and recite. The parents and relations of the boys also attended. The performances were surprisingly good, and of course were admired and applauded; and the English school thereby acquired such reputation that the number of Mr. Dove's scholars soon amounted to upwards of ninety, which number did not diminish as long as he continued master, viz, upwards of two years; but, he finding the salary insufficient, and having set up a school for girls in his own house to supply the deficiency, and quitting the boys' school somewhat before the hour to attend the girls, the trustees disapproved of his so doing, and he quitted their employment, continued his girls' school, and opened one for boys on his own account. The trustees provided another English master; but, though a good man, yet not possessing the talents of an English schoolmaster in the same perfection with Mr. Dove, the school diminished daily, and soon was found to have but about forty scholars left. The performance of the boys, in reading and speaking, were no longer so brilliant; the trustees of course had not the same pleasure in hearing them, and the monthly visitations, which had so long afforded a delightful entertainment to large audiences, became less and less attended, and at length discontinued; and the English school has never since recovered its original reputation.

Thus, by our injudiciously starving the English part of our scheme of education, we only saved £50 a year, which was required as an additional salary to an acknowledged excellent English master, which would have equaled his encouragement to that of the Latin master. I say, by saving the £50, we lost fifty scholars, which would have been £200 a year, and defeated, besides, one great end of the institution.

In the meantime our favors were showered upon the Latin part. The number of teachers was increased and their salaries from time to time augmented till, if I mistake not, they amounted in the whole to more than £600 a year, though the scholars hardly ever exceeded sixty; so that each scholar cost the funds £10 per annum, while he paid but £4, which was a loss of £6 on every one of them.

The monthly visitations of the schools by the trustees having been long neglected, the omission was complained of by the parents as a breach of original promise; whereupon the trustees (July 11, 1755) made it a law that "they should meet on the second Tuesday in every month, at the Academy, to visit the schools, examine the scholars, hear their public exercises," etc. This good law, however, like many others, was not long observed; for I find by a minute of December 14, 1756, that the examination of the schools by the trustees had been long neglected, and it was agreed that it should thereafter be done on the first Monday in every month; and yet, notwithstanding this new rule, the neglect returned, so that we are informed, by another minute of January 13, 1761, "that for five months past there had not been one meeting of the trustees." In the course of fourteen years several of the original trustees, who had been disposed to favor the English school, deceased, and

others not so favorable were chosen to supply their places; however, it appears by the minutes that the remainder had sometimes weight enough to recall the attention of their colleagues to that school and obtain acknowledgments of the unjust neglect it had been treated with. Of this the following extract from the minutes is authentic proof, viz (Minute Book, Vol. 1, February 8, 1763):

"The state of the English school was taken into consideration, and it was observed that Mr. Kinnersley's time was entirely taken up in teaching little boys the elements of the English language (this is what it dwindled into—a school similar to those kept by old women who teach children their letters); and that speaking and rehearsing in public were totally disused, to the great prejudice of the other scholars and students, and contrary to the original design of the trustees in the forming of that school; and, as this was a matter of great importance, it was particularly recommended to be fully considered by their trustees at their next meeting."

At their next meeting it was not considered, but this minute contains full proof of the fact that the English education had been neglected, and it contains an acknowledgment that the conduct of the English school was contrary to the original design of the trustees in forming it.

In the same book of minutes we find the following of April 12, 1763: "The state of the English school was again taken into consideration, and it was the opinion of the trustees that the original design should be prosecuted, of teaching the scholars (of that and other schools) the elegance of the English language, and giving them a proper pronunciation; and that the old method of hearing them read and repeat in public should be again used. And a committee was appointed to confer with Mr. Kinnersley how this might best be done, as well as what assistance it would be necessary to give Mr. Kinnersley to enable him to attend this necessary service, which was indeed the proper business of his professorship."

In this minute we have another acknowledgment of what was the original design of the English school; but here are some words thrown in to countenance an innovation, which had been for some time practiced. The words are, "and the other schools." Originally, by the constitutions, the rector was to teach the Latin scholars their English. The words of the constitution are: "The rector shall be obliged, without assistance of any usher, to teach twenty scholars the Latin and Greek languages and the English tongue." To enable him to do this, we have seen that some of his qualifications, indispensably required, were, his polite speaking, writing, and understanding the English tongue. Having these, he was enjoined, on all occasions consistent with his other duties, to assist the English master in improving the boys under his care; but there is not a word obliging the English master to teach the Latin boys English. However, the Latin masters, either unable to do it or unwilling to take the trouble, had got him up among them, and employed so much of his time, that this minute owns he could not, without further assistance, attend the necessary service of his own school, which, as the minute expressly says, "was indeed the proper business of his professorship."

Notwithstanding this good resolution of the trustees, it seems the execution of it was neglected; and, the public not being satisfied, they were again haunted by the friends of the children with the old complaint, that the original constitutions were not complied with in regard to the English school. Their situation was unpleasant. On the one hand, there were still remaining some of the first trustees, who were friends to the scheme of English education, and these would now and then be remarking that it was neglected, and would be moving for a reformation; the constitutions at the same time, staring the trustees in the face, gave weight to these remarks. On the other hand, the Latinists were combined to decry the English school as useless. It was without example, they said, as indeed they still say, that a school for teaching the vulgar tongue, and the sciences in that tongue was ever joined with a college, and the Latin masters were fully competent to teach the English.

I will not say that the Latinists looked on every expense upon the English school as so far disabling the trustees from augmenting their salaries, and therefore regarding it with an evil eye; but, when I find the minutes constantly filled with their applications for higher wages, I can not but see their great regard for money matters, and suspect a little their using their interest and influence to prevail with the trustees not to encourage that school. And, indeed, the following minute is so different in spirit and sentiment from that last recited, that one can not avoid concluding that some extraordinary pains must have been taken with the trustees between the two meetings of April 12 and June 13, to produce a resolution so very different, which here follows in this minute, viz: "June 13, 1763.—Some of the parents of the children in the Academy having complained that their children were not taught to speak and read in public, and having requested that this useful part of education might be more attended to, Mr. Kinnersley was called in, and desired to give an account of what was done in this branch of his duty; and he declared that this was well taught, not only in the English school, which was more immediately under his care, but in the philosophy classes regularly every Monday afternoon, and as often at other times as his other business would permit. And it not appearing to the trustees that any more could at present be done without partiality and great inconvenience, and that this was all that was ever proposed to be done, they did not incline to make any alteration, or to lay any farther burthen on Mr. Kinnersley." Note here, that the English school had not for some years preceding been visited by the trustees. If it had, they would have known the state of it without making this inquiry of the master. They might have judged whether the children more immediately under his care were in truth well taught, without taking his word for it, as it appears they did. But it seems he had a merit, which, when he pleaded it, effectually excused him. He spent his time when out of the English school in instructing the philosophy classes who were of the Latin part of the institution. Therefore they did not think proper to lay any further burden upon him.

It is a little difficult to conceive how these trustees could bring themselves to declare that "no more could be done in the English school than was then done," when their preceding minute declares that "the original design was teaching scholars the elegance of the English language and giving them a proper pronunciation; and that hearing them read and repeat in public was the old method, and should again be used." And, certainly, the method that had been used might be again used, if the trustees had thought fit to order Mr. Kinnersley to attend his own school, and not spend his time in the philosophy classes, where his duty did not require his attendance. What the apprehended partiality was, which the minute mentions, does not appear, and can not easily be imagined; and the great inconvenience of obliging him to attend his own school could only be depriving the Latinists of his assistance, to which they had no right.

The trustees may possibly have supposed that by this resolution they had precluded all future attempts to trouble them with respect to their conduct of the English school. The parents indeed, despairing of any reformation, withdrew their children and placed them in private schools, of which several now appeared in the city, professing to teach what had been promised to be taught in the Academy; and they have since flourished and increased by the scholars the Academy might have had if it had performed its engagements. But the public was not satisfied; and we find, five years after, the English school appearing again, after five years' silence, haunting the trustees like an evil conscience, and reminding them of their failure in duty. For, of their meetings January 19–26, 1768, we find these minutes: "Jan. 19, 1768.—It having been remarked that the schools suffer in the public esteem by the discontinuance of public speaking, a special meeting is to be called on Tuesday next, to consider the state of the English school, and to regulate such matters as may be necessary." "Jan. 26, 1768.—A special meeting. It is agreed to give Mr. Jon. Easton and Mr. Thomas Hall, at the rate of twenty-five pounds per annum each, for

assisting Mr. Kinnersley in the English school, and taking care of the same when he shall be employed in teaching the students, in the philosophy classes and grammar school, the art of public speaking. A committee, Mr. Peters, Mr. Cox, and Mr. Duché, with the masters, was appointed to fix rules and times for employing the youth in public speaking. Mr. Easton and Mr. Hall are to be paid out of a fund to be raised by some public performance for the benefit of the college."

It appears from these minutes (1) that the reputation of the Academy had suffered in the public esteem by the trustees' neglect of that school; (2) that Mr. Kinnersley, whose sole business it was to attend it, had been called from his duty and employed in the philosophy classes and Latin grammar school, teaching the scholars there the art of public speaking, which the Latinists used to boast they could teach themselves; (3) that the neglect for so many years of the English scholars, by this subtraction of their master, was now acknowledged, and proposed to be remedied for the future by engaging two persons, Mr. Hall and Mr. Easton, at £25 per annum, to take care of those scholars, while Mr. Kinnersley was employed among the Latinists.

Care was, however, taken by the trustees not to be at any expense for this assistance to Mr. Kinnersley, for Hall and Easton were only to be paid out of the uncertain fund of money to be raised by some public performance for the benefit of the college.

A committee was, however, now appointed to fix rules and times for employing the youth in public speaking. Whether anything was done in consequence of these minutes does not appear, no report of the committee respecting their doings being to be found on the records, and the probability is that they did, as heretofore, nothing to the purpose. For the English school continued to decline, and the first subsequent mention we find made of it is the minute of March 21, 1769, when the design began to be entertained of abolishing it altogether, whereby the Latinists would get rid of an eyesore and the trustees of what occasioned them such frequent trouble. The minute is this: "The state of the English school is to be taken into consideration at next meeting, and whether it be proper to continue it on its present footing or not." This consideration was, however, not taken at the next meeting, at least nothing was concluded so as to be minuted; nor do we find any further mention of the English school till the 18th of July, when the following minute was entered, viz: "A special meeting is appointed to be held on Monday next, and notice to be given that the design of this meeting is to consider whether this English school is to be longer continued."

This special meeting was accordingly held on the 23d of July, 1769, of which date is the following minute and resolution, viz: "The trustees at this meeting, as well as several former ones, having taken into their serious consideration the state of the English school, are unanimously of opinion that, as the said school is far from defraying the expense at which they now support it, and not thinking that they ought to lay out any great part of the funds intrusted to them on this branch of education, which can so easily be procured at other schools in this city, have resolved that, from and after the 17th of October next, Mr. Kinnersley's present salary do cease, and that from that time the said school, if he shall be inclined to keep it, shall be on the following footing, viz, that he shall have the free use of the room where he now teaches, and also the whole tuition money arising from the boys that may be taught by him, and that he continue professor of English and oratory and, as such, have the house he lives in rent free, in consideration of his giving two afternoons in the week, as heretofore, for the instruction of the students belonging to the college in public speaking, agreeable to such rules as are or shall be made for that purpose by the trustees and faculty. It is further ordered by this regulation that the boys belonging to his school shall be still considered as part of the youth belonging to the college and under the same general government of the trustees and faculty, and such of his scholars as may attend the mathematical or other master having a salary from

the college, for any part of their time, shall pay proportionately into the fund of the trustees, to be accounted for by Mr. Kinnersley, and deducted out of the twenty pounds per quarter now paid by the English scholars."

The trustees hope this regulation may be agreeable to Mr. Kinnersley, as it proceeds entirely from the reasons set forth above, and not from any abatement of that esteem which they have always retained for him during the whole course of his services in college.

Upon this and some of the preceding minutes may be observed: (1) That the English school having been long neglected, the scholars were so diminished in number as to be far from defraying the expense in supporting it; (2) that the instruction they received there, instead of a complete English education, which had been promised to the subscribers by the original constitutions, were only such as might easily be procured at other schools in this city; (3) that this unprofitableness of the English school, owing to neglect of duty in the trustees, was now offered as a reason for demolishing it altogether, for it was easy to see that, after depriving the master of his salary, he could not longer afford to continue it; (4) that if the insufficiency of the tuition money in the English school to pay the expense, and the ease with which the scholars might obtain equal instruction in other schools, were good reasons for depriving the master of his salary and destroying that school, they were equally good for dismissing the Latin masters and sending their scholars to other schools, since it is notorious that the tuition money of the Latin school did not pay much above a fourth part of the salaries of the masters, and remained in full possession of all the college property, without any future expense; (5) that by their refusing any longer to support, instead of reforming, as they ought to have done, the English school, they shamefully broke through and set at naught the original constitutions, for the due execution of which the faith of the original trustees had been solemnly pledged to the public, and diverted the revenues, proceeding from much of the first subscriptions, to other purposes than those which had been promised. Had the Assembly, when disposed to disfranchise the trustees, set their foot upon this ground, their proceeding to declare the forfeiture would have been more justifiable, and it may be hoped care will now be taken not to give any future Assembly the same handle.

It seems, however, that this unrighteous resolve did not pass the trustees without a qualm in some of them, for at the next meeting a reconsideration was moved, and we find the following minute under the date of August 1, 1769: "The minute of last meeting relative to the English school was read, and after mature deliberation and reconsidering the same, it was voted to stand as it is, provided it should not be found anyway repugnant to the first charter granted to the Academy, a copy of which was ordered to be procured out of the rolls office."

One might have thought it natural for the trustees to have consulted this charter before they took the resolution, and not only the first charter, but the original constitution; but, as it seems, they had lost the instrument containing the charter, and, though it had been printed, not one of them was furnished with a copy to which he might refer, it is no wonder they had forgot the constitutions made twenty years before, to which they did not seem to have in the least adverted.

Probably, however, the trustees found, when they came to examine original papers, that they could not easily get entirely rid of the English school, and so concluded to continue. For I find in a law for premiums, minuted under the date of January 29, 1770, that the English and mathematical school is directed to be examined the third Tuesday in July, and a premium book of the value of \$1 was to be given to him that reads best and understands best the English grammar, etc. This is very well; but to keep up the old partiality in favor of the Latin school, the premium to its boys was to be of the value of \$2. In the premiums for best speaking, they were indeed put upon an equality.

After reading this law for premiums, I looked forward to the third Tuesday in July with some pleasing expectation of their effect on the examination required for that day. But I met with only this further record of the inattention of the trustees

to their own resolutions and even laws, when they contain anything favorable to the English school. The minute is only this: "July, August, September, October, no business done:"

On the 20th of November, however, I find there was an examination of the Latin school, and premiums, with pompous inscriptions, afterwards adjudged to Latin scholars; but I find no mention of any to the English, or that they were even examined. Perhaps there might have been none to examine, or the school discontinued; for it appears by a minute of July 21 following, that the provost was desired to advertise for a master able to teach English grammatically, which it seems was all the English master was now required to teach, the other branches originally promised being dropped entirely.

In October, 1772, Mr. Kinnersley resigned his professorship, when Dr. Peters and others were appointed to consider on what footing the English school shall be put for the future, and that a new master may be thought of, and Mr. Willing to take care of the school for the present at £50 per annum. It is observable here that there is no mention of putting it on its original footing, and the salary is shrunk amazingly; but this resignation of Mr. Kinnersley gave occasion to one testimony of the utility of the English professor to the institution, notwithstanding all the partiality, neglect, slights, discouragements, and injustice that school had suffered. We find it in the minutes of a special meeting on the 2d of February, 1773, present, Dr. Peters, Mr. Chew, Mr. Lawrence, Mr. Willing, Mr. Trettel, and Mr. Inglis, and expressed in these strong terms:

"The college suffers greatly since Mr. Kinnersley left it, for want of a person to teach public speaking, so that the present classes have not those opportunities of learning to declaim and speak which have been of so much use to their predecessors, and have contributed greatly to raise the credit of the institution."

Here is another confession that the Latinists were unequal to the task of teaching English eloquence, though on occasion the contrary is still asserted.

I flatter myself, gentlemen, that it appears by this time pretty clearly from our own minutes, that the original plan of the English school has been departed from; that the subscribers to it have been disappointed and deceived, and the faith of the trustees not kept with them; that the public had been frequently dissatisfied with the conduct of the trustees, and complained of it; that, by the niggardly treatment of good masters, they have been driven out of the school, and the scholars have followed, while a great loss of revenue has been suffered by the Academy; so that the numerous schools now in the city owe their rise to our management, and that we might as well have had the best part of the tuition money paid into our treasury that now goes into private pockets; that there has been a constant disposition to depress the English school in favor of the Latin; and that every means to procure a more equitable treatment has been rendered ineffectual; so that no more hope remains while they continue to have any connection. It is, therefore, that wishing as much good to the Latinists as their system can honestly procure for them, we now demand a separation, and without desiring to injure them; but, claiming an equitable portion of our jointstock, we wish to execute the plan they have so long defeated, and afford the public the means of a complete English education.

I am the only one of the original trustees now living, and I am just stepping into the grave myself. I am afraid that some part of the blame incurred by the trustees may be laid on me for having too easily submitted to the deviations from the constitution, and not opposing them with sufficient zeal and earnestness; though indeed my absence in foreign countries at different times for nearly thirty years tended much to weaken my influence. To make what amends are yet in my power, I seize this opportunity, the last I may possibly have, of bearing testimony against those deviations. I seem here to be surrounded by the ghosts of my dear departed friends, beckoning and urging me to use the only tongue now left us in demanding that justice to our grandchildren that to our children has been denied; and I hope they will not be sent away discontented.

The origin of Latin and Greek schools among the different nations of Europe is known to have been this: That until between three and four hundred years past there were no books in any other language; all the knowledge then contained in books viz. the theology, the jurisprudence, the physic, the art military, the politics, the mathematics and mechanics, the natural and moral philosophy, the logic and rhetoric, the chemistry, the pharmacy, the architecture, and every other branch of science, being in those languages it was, of course, necessary to learn them as the gates through which men must pass to get at that knowledge.

The books then existing were manuscript, and these consequently so dear that only a few wealthy, inclined to learning, could afford to purchase them. The common people were not even at the pains of learning to read, because, after taking that pains, they would have nothing to read that they could understand without learning the ancient languages, nor then, without money to purchase the manuscripts; and so few were the learned readers sixty years after the invention of printing that it appears by letters still extant between the printers in 1499 that they could not throughout Europe find purchasers for more than three hundred copies of any ancient authors. But printing beginning now to make books cheap, the readers increased so much as to make it worth while to write and print books in the vulgar tongue. At first these were chiefly books of devotion and little histories. Gradually several branches of science began to appear in the common languages, and at this day the whole body of science, consisting not only of translations from all the valuable ancients, but of all the new modern discoveries, is to be met with in those languages, so that learning the ancient for the purpose of acquiring knowledge is become absolutely unnecessary.

But there is in mankind an unaccountable prejudice in favor of ancient customs and habitudes, which inclines to a continuance of them after the circumstances which formerly made them useful cease to exist. A multitude of instances might be given, but it may suffice to mention one. Hats were once thought a useful part of dress; they kept the head warm and screened it from the violent impression of the sun's rays, and from the rain, snow, hail, etc., though, by the way, this was not the more ancient opinion or practice. From among all the remains of antiquity, the bustoes, statues, basso-relievos, medals, etc., which are infinite, there is no representation of the human figure with a hat or cap on, nor any covering for the head, unless it be the head of a soldier, who has a helmet; but that is evidently not a part of dress for health, but as a protection from the strokes of a weapon.

At what time hats were first introduced we know not, but in the last century they were universally worn throughout Europe. Gradually, however, as the wearing of wigs and hair nicely dressed prevailed, the putting on of hats was disused by genteel people, lest the curious arrangements of the curls and powdering should be disordered, and umbrellas began to supply their place; yet still our considering the hat as a part of the dress continues so far to prevail that a man of fashion is not thought dressed without having one, or something like one, about him which he carried under his arm. So that there are a multitude of the politer people in all the courts in capital cities of Europe who have never, nor their fathers before them, worn a hat otherwise than as a *chapeau bras*, though the utility of such a mode of wearing it is by no means apparent, and it is attended not only with some expense but with a degree of constant trouble.

The still prevailing custom of having schools for teaching generally our children in these days the Latin and Greek language; I consider therefore in no other light than as the *chapeau bras* of modern literature.

Thus the time spent in that study might, it seems, be much better employed in the education for such a country as ours; and this was indeed the opinion of most the original trustees,

HINTS FOR CONSIDERATION RESPECTING THE ORPHAN SCHOOLHOUSES
IN PHILADELPHIA.

Charitable institutions, however originally well intended and well executed at first, for many years are subject to be in a course of time corrupted, mismanaged, and their funds misapplied or perverted to private purposes. Would it not be well to guard against these by prudent regulations respecting the choice of managers and establishing the power of inspecting their conduct in some permanent body, as the monthly or quarterly meeting?

Would it not be more respectable for the institution if the appearance of making a profit of the labor of orphans were avoided and the dependence for funds to be wholly on charitable contributions? If this should be concluded, then it may be proper to open an account with each orphan on admission, the orphans to have credit for any subsistence brought in with them, and for the profit made of it and of their labor, and made debtors for their maintenance and education; and at their discharge on coming of age to be paid the balance, if any, in their favor, or remain debtors for the balance, if against them, which they may be exhorted to pay, if ever able, but not to be compelled. Such as receive a balance may be exhorted to give back a part in charity to the institution that has taken such kind care of them, or at least to remember it favorably, if hereafter God should bless them with ability, either in benefaction while living, or a legacy on decease. The orphans, when discharged, to receive, besides decent clothing and some money, a certificate of their good behavior, if such it has been, as a recommendation; and the managers of the institution should still consider them as their children, so far as to counsel them in their affairs, encourage and promote them in their business, watch over and kindly admonish them when in danger of misconduct.

At 33 Franklin is continuing his self-education by his researches in natural history. In his Proposals for the Education of Youth, he advises that "now and then excursions be made to the neighboring plantations of the best farmers, their methods observed and reasoned upon for the information of youth;" "that natural history will also afford opportunities of introducing many observations," etc.

Franklin himself was a great observer, and like all great men who have advanced science, he made his observations with the assistance of very simple and inexpensive instruments. There is in the possession of the University of Pennsylvania and of the Franklin Institute, some portions of his electrical apparatus, the simplicity of which surprises the student in the modern electrical laboratory and leads him almost to underrate the services of Franklin to science. Franklin's self-education taught him to make use of the phenomena in nature as he made use of the labors of other men, to swell the mass of his own knowledge.

He illustrates this practical method of scientific investigation in his account of the ants, told by Prof. Kalm; how he put an earthen pot filled with molasses into a closet, into which the ants soon found their way and began devouring the molasses. Franklin, observing this, removed the pot and suspended it by a string to a nail in the ceiling of the room, leaving a single ant in the pot. When its hunger was satisfied it tried to go home, and after many efforts it found its way up the string, across the ceiling to the wall, and to the ground, and by half an hour Franklin saw a swarm of ants issuing from the ground,

climbing the wall, crossing the ceiling, creeping down the string, and eating the molasses, one line coming and one line going, until the molasses was all eaten up. This little story, which some of us remember in our schoolbooks, illustrates Franklin's methods of investigating the habits of insects, as simple as his experiment with the kite. In his scheme for education he makes no provision for elaborate physical apparatus, there is no reference to laboratories, and it seems as if his ideas were deficient in some of the essentials of education in modern times. This hasty conclusion is corrected when we reflect on the education which Franklin himself received and was making all through life; he knew nothing of elaborate physical apparatus; nature was his laboratory, observation and experience were his teachers, and he relied upon these as the best means for the education of others. •Ambition stimulated him to gain knowledge and he concluded that it would stimulate others.

It has sometimes been asked whether the elaborate apparatus in modern education does not weigh heavily in the hands of youth, and whether many of them are able to see the principles on account of the apparatus.

The utilitarian ends which Franklin proposed are generally traceable to his own experience. His loss from the bad bookkeeping of the Deputy Postmaster-General of the Colonies led him to "mention it as a lesson to those young men who may be employed in managing affairs for others that they should always render accounts and make remittances with great clearness and punctuality. The character of observing such a conduct is the most powerful of recommendations to new employments and increase of business." A word frequently used by Franklin is "business." It should be remembered that he viewed education from the vantage ground of the man of affairs who had never received the conventional training of the schools. He saw in industry and business the chief occupation of the mass of the people. His idea of schools was that they should contribute to the advantage of this industry and this business.¹ He would make the transitions from school life to the life of business easy and natural, and his chief defense for his plan for an English school was that there such a foundation of knowledge and ability would be laid as properly improved would qualify boys to "pass through and execute the several offices of civil life with advantage and reputation to themselves and country."² It is not to be understood that by the offices of civil life Franklin meant merely political offices. He uses the term "civil life" comprehensively, meaning the several occupations of the citizen. Had he meant political preferment, he would have used the phrase "public affairs."

¹The Wharton School of Finance and Economy in the University of Pennsylvania was founded on this idea. (See the special chapter on that school, and also Mr. Wharton's plan *infra*.)

²The School of American History and Institutions in the University of Pennsylvania was founded with this idea as a basis. (See account of it, *infra*.)

Franklin conceived of the school as a foundation for improvement in the pupil by the pupil himself. His own life was a continuous self-education; practical wisdom was his aim. We find nowhere in his writings that modern phrase "the completion of education;" he makes no provision for any such limitation or standstill.

Franklin was a native of Boston, and he never forgot his native town. Once in ten years he revisited that beloved spot and refreshed himself with the renewal of ancient acquaintance. He frequently refers to his New England training, and it usually stood him in good stead. He says:

I had, on the whole, abundant reason to be satisfied with my being established in Pennsylvania. There were, however, two things that I regretted, there being no provision for defense nor for the complete education of youth, no militia, nor any college. I therefore, in 1743, drew up a proposal for establishing an Academy,¹ and at that time thinking the Rev. Mr. Peters, who was at that time out of employ, a fit person to superintend such an institution, I communicated the project to him, but he having more profitable views in the service of the proprietors, which succeeded, declined the undertaking, and not knowing another at that time suitable for such a trust, I let the scheme lie awhile dormant. I succeeded better the next year, 1744, in proposing and establishing a Philosophical Society.²

¹See the proposals, p. 58 *et seq.*; also the early charters of the University.

²A PROPOSAL FOR PROMOTING USEFUL KNOWLEDGE AMONG THE BRITISH PLANTATIONS IN AMERICA.

[This paper appears to contain the first suggestion, in any public form, for an American Philosophical Society.]

PHILADELPHIA, May 14, 1743.

The English are possessed of a long tract of continent, from Nova Scotia to Georgia, extending north and south through different climates, having different soils, producing different plants, mines, and minerals, and capable of different improvements, manufactures, etc.

The first drudgery of settling new colonies, which confines the attention of people to mere necessities, is now pretty well over; and there are many in every province in circumstances that set them at ease, and afford leisure to cultivate the finer arts and improve the common stock of knowledge. To such of these who are men of speculation many hints must from time to time arise, many observations occur, which, if well examined, pursued, and improved, might produce discoveries to the advantage of some or all of the British plantations or to the benefit of mankind in general.

But as from the extent of the country such persons are widely separated, and seldom can see and converse or be acquainted with each other, so that many useful particulars remain uncommunicated, die with the discoverers, and are lost to mankind; it is, to remedy this inconvenience for the future proposed—

That one society be formed of virtuosi or ingenious men residing in the several colonies, to be called The American Philosophical Society, who are to maintain a constant correspondence.

That Philadelphia, being the city nearest the center of the continent colonies, communicating with all of them northward and southward by post, and with all the islands by sea, and having the advantage of a good, growing library, be the center of the Society.

That at Philadelphia there be always at least seven members, viz, a physician, a botanist, a mathematician, a chemist, a mechanician, a geographer, and a general natural philosopher, besides a president, treasurer, and secretary.

That these members meet once a month or oftener, at their own expense, to communicate to each other their observations and experiments; to receive, read, and

Meanwhile the prospects of war delayed academic matters. His activity in the public defense having pleased the governor and council, he remarks with evident pride:

They took me into confidence, and I was consulted by them in every measure, where their concurrence was thought useful to the association. Failing to obtain

consider such letters, communications, or queries as shall be sent from distant members; to direct the disbursing of copies of such communications as are valuable to other distant members, in order to procure their sentiments thereupon.

That the subjects of the correspondence be: All new-discovered plants, herbs, trees, roots, their virtues, uses, etc.; methods of propagating them and making such as are useful, but particular to some plantations, more general; improvements of vegetable juices, as ciders, wines, etc.; new methods of curing or preventing diseases; all new-discovered fossils in different countries, as mines, minerals, and quarries; new and useful improvements in any branch of mathematics; new discoveries in chemistry, such as improvements in distillation, brewing, and assaying of ores; new mechanical inventions for saving labor, as mills and carriages, and for raising and conveying of water, draining of meadows, etc.; all new arts, trades, and manufactures that may be proposed or thought of; surveys, maps, and charts of particular parts of the seacoasts or inland countries; course and junction of rivers and great roads, situation of lakes and mountains, nature of the soil and productions; new methods of improving the breed of useful animals; introducing other sorts from foreign countries; new improvements in planting, gardening, and clearing land; and all philosophical experiments that let light into the nature of things, tend to increase the power of man over and multiply the conveniences or pleasures of life.

That a correspondence already begun by some intended members shall be kept up by this Society with the Royal Society of London and with the Dublin Society.

That every member shall have abstracts sent him quarterly of everything valuable communicated to the Society's secretary at Philadelphia, free of all charge, except the yearly payment hereafter mentioned.

That, by permission of the Postmaster-General, such communications pass between the secretary of the Society and the members, postage free.

That, for defraying the expense of such experiments as the Society shall judge proper to cause to be made, and other contingent charges for the common good, every member send a piece of eight per annum to the treasurer, at Philadelphia, to form a common stock, to be disbursed by order of the President, with the consent of the majority of the members that can conveniently be consulted thereupon, to such persons and places where and by whom the experiments are to be made, and otherwise as there shall be occasion, of which disbursements an exact account shall be kept and communicated yearly to every member.

That, at the first meetings of the members at Philadelphia, such rules be formed for regulating their meetings and transactions for the general benefit as shall be convenient and necessary, to be afterwards changed and improved as there shall be occasion, wherein due regard is to be had to the advice of distant members.

That, at the end of every year, collections shall be made and printed of such experiments, discoveries, and improvements as may be thought of public advantage, and that every member have a copy sent him.

That the business and duty of the secretary be to receive all letters intended for the Society and lay them before the president and members at their meetings; to abstract, correct, and methodize such papers as require it and as he shall be directed to do by the president, after they have been considered, debated, and digested in the Society; to enter copies thereof in the Society's books, and make out copies for distant members; to answer their letters by direction of the president, and keep records of all material transactions of the Society.

Benjamin Franklin, the writer of this proposal, offers himself to serve the Society as their secretary till they shall be provided with one more capable.

the coöperation of the middle colonies, and calling in the aid of religion, I proposed to them the proclaiming a fast to promote reformation, and implore the blessing of Heaven on our undertaking. They embraced the motion; but, as it was the first fast ever thought of in the province, the secretary had no precedent from which to draw the proclamation. My education in New England, where a fast is proclaimed every year, was here of some advantage. I drew it in the accustomed style; it was translated into German, printed in both languages, and divulged through the province.

This gave the clergy of the different sects an opportunity of influencing their congregations to join in the association, and it would probably have been general among all but Quakers if peace had not soon intervened.

Franklin's confession that he proposed a fast because of the obvious advantages to be derived from it is a comment on his theory of education. Had any other equal means of winning public favor been suggested by his education in New England, he would have weighed the relative advantages and given his decision accordingly, for he tells us that he was accustomed, when considering two courses of action, to set down in columns the pros and the cons of the question.¹ Franklin's motion years later for prayers in Congress was doubtless made to secure the advantage which he supposed would be attached to them in the public mind.

Peace being concluded [he says], and the association business therefore at an end, I turned my thoughts again to the affair of establishing an academy. The first step I took was to associate in the design a number of active friends, of whom the Junto furnished a good part; the next was to write and publish a pamphlet, entitled, "Proposals relating to the Education of Youth in Pennsylvania." This I distributed among the principal inhabitants gratis, and as soon as I could suppose their minds a little prepared by the perusal of it, I set on foot a subscription for opening and supporting an academy; it was to be paid in quotas yearly for five years. By so dividing it I judged the subscription might be larger, and I believe it was so, amounting to no less, if I remember right, than 5,000 pounds.

In the introduction to these proposals I stated their publication, not as an act of mine, but of some *publick-spirited gentlemen*, avoiding as much as I could, according to my usual rule, the presenting myself to the public as the author of any scheme for their benefit.

The subscribers, to carry the project into immediate execution, chose out of their number twenty-four trustees and appointed Mr. Francis, then attorney-general, and myself to draw up constitutions for the government of the academy, which being done and signed a house was hired, masters engaged, and the schools opened, I think, in the same year, 1749.¹

The scholars increasing fast, the house was soon found too small, and we were looking out for a piece of ground properly situated, with intention to build, when Providence threw into our way a large house ready built which, with a few alterations, might well serve our purpose. This was the building before mentioned, erected by the hearers of Mr. Whitefield, and was obtained for us in the following manner:

It is to be noted that the contributions to this building, being made by the people of different sects, care was taken in the nomination of trustees, in whom the building and ground were to be vested, that a predominancy should not be given to any sect lest in time that predominancy might be a means of appropriating the whole to the use of such sect, contrary to the original intention. It was, therefore, that one of

¹For a discussion of this subject see Judge Pennypacker's chapter on The University in its Relations to the State of Pennsylvania, *infra*.

each sect was appointed, viz, one Church-of-England man, one Presbyterian, one Baptist, one Moravian, etc.; those in case of vacancy by death were to fill it by election from among the contributors. The Moravian happened not to please his colleagues, and on his death they resolved to have no other of that sect. The difficulty then was how to avoid having two of some other sect by means of the new choice.

Several persons were named, and for that reason not agreed to. At length one mentioned me with the observation that I was merely an honest man, and of no sect at all, which prevailed with them to choose me. The enthusiasm which existed when the house was built had long since abated, and its trustees had not been able to procure fresh contributions for paying the ground rent and discharging some other debts the building had occasioned, which embarrassed them greatly. Being now a member of both sets of trustees, that for the building and that for the academy, I had a good opportunity of negotiating with both, and brought them finally to an agreement, by which the trustees for the building were to cede it to those of the academy, the latter undertaking to discharge the debt, to keep forever open in the building a large hall for occasional preachers according to the original intention and maintain a free school for the instruction of poor children. Writings were accordingly drawn and on paying the debts, the trustees of the academy were put into possession of the premises; and by dividing the great and lofty hall into stories, and different rooms above and below for the several schools, and purchasing some additional ground the whole was soon made fit for our purpose, and the scholars removed into the building. * * * The trustees of the academy after awhile were incorporated by a charter from the governor; their funds were increased by contributions in Britain and grants of land from the proprietaries, to which the Assembly has since made considerable addition; and thus we established the present University of Philadelphia.¹ I have been continued one of its trustees from the beginning, now nearly forty years, and have had the very great pleasure of seeing a number of the youth who have received their education in it distinguished by their improved abilities, serviceable in public stations, and ornaments to their country.²

¹ This institution became the University of Pennsylvania in 1779. (See Act of Nov. 27, 1779, erecting the University of Pennsylvania, p. 83.)

² The narrative is broken here in order to present the text of important documents, to several of which Franklin was a party,—in the early history of the University; it is resumed on page 95.

I.

PROPOSALS RELATING TO THE EDUCATION OF YOUTH IN PENNSYLVANIA.

ADVERTISEMENT TO THE READER.

It has long been regretted as a misfortune to the youth of this province, that we have no Academy, in which they might receive the accomplishments of a regular education. The following paper of hints towards forming a plan for that purpose, is so far approved by some public-spirited gentlemen, to whom it has been privately communicated, that they have directed a number of copies to be made by the press, and properly distributed, in order to obtain the sentiments and advice of men of learning, understanding, and experience in these matters; and have determined to use their interest and best endeavors to have the scheme, when completed, carried gradually into execution; in which they have reason to believe they shall have the hearty concurrence and assistance of many, who are well-wishers to their country. Those, who incline to favor the design with their advice, either as to the parts of learning to be taught, the order of study, the method of teaching, the economy of the school, or any other matter of importance to the success of the undertaking, are desired to communicate their sentiments as soon as may be, by letter, directed to B. Franklin, Printer, in Philadelphia.

The good education of youth has been esteemed by wise men in all ages, as the surest foundation of the happiness both of private families and of commonwealths. Almost all governments have therefore made it a principal object of their attention, to establish and endow with proper revenues such seminaries of learning, as might supply the succeeding age with men qualified to serve the public with honor to themselves and to their country.

Many of the first settlers of these provinces were men who had received a good education in Europe; and to their wisdom and good management we owe much of our present prosperity. But their hands were full, and they could not do all things. The present race are not thought to be generally of equal ability; for, though the American youth are allowed not to want capacity, yet the best capacities require cultivation; it being truly with them, as with the best ground, which, unless well tilled and sowed with profitable seed, produces only ranker weeds.

That we may obtain the advantages arising from an increase of knowledge, and prevent, as much as may be, the mischievous consequences that would attend a general ignorance among us, the following hints are offered towards forming a plan for the education of the youth of Pennsylvania, viz:

It is proposed,

That some persons of leisure and public spirit apply for a charter, by

which they may be incorporated, with power to erect an Academy for the education of youth, to govern the same, provide masters, make rules, receive donations, purchase lands, and to add to their number, from time to time, such other persons as they shall judge suitable.

That the members of the corporation make it their pleasure, and in some degree their business, to visit the Academy often, encourage and countenance the youth, countenance and assist the masters, and by all means in their power advance the usefulness and reputation of the design; that they look on the students as in some sort their children, treat them with familiarity and affection, and when they have behaved well, and gone through their studies, and are to enter the world, zealously unite, and make all the interest that can be made to establish them, whether in business, offices, marriages, or any other thing for their advantage, preferably to all other persons whatsoever, even of equal merit.

And if men may, and frequently do, catch such a taste for cultivating flowers, for planting, grafting, inoculating, and the like, as to despise all other amusements for their sake, why may not we expect they should acquire a relish for that more useful culture of young minds. Thomson says:

'Tis joy to see the human blossoms blow,
When infant reason grows apace, and calls,
For the kind hand of an assiduous care.
Delightful task! to rear the tender thought,
To teach the young idea how to shoot;
To pour the fresh instruction o'er the mind,
To breathe the enlivening spirit, and to fix
The generous purpose in the glowing breast.

That a house be provided for the Academy, if not in the town, not many miles from it; the situation high and dry, and, if it may be, not far from a river, having a garden, orchard, meadow, and a field or two.

That the house be furnished with a library if in the country, (if in the town, the town libraries may serve), with maps of all countries, globes, some mathematical instruments, an apparatus for experiments in natural philosophy, and for mechanics; prints, of all kinds, prospects, buildings, and machines.

That the Rector be a man of good understanding, good morals, diligent and patient, learned in the languages and sciences, and a correct, pure speaker and writer of the English tongue; to have such tutors under him as shall be necessary.

That the boarding scholars diet together, plainly, temperately, and frugally.

That to keep them in health, and to strengthen and render active their bodies, they be frequently exercised in running, leaping, wrestling and swimming.

That they have peculiar habits to distinguish them from other youth,

if the Academy be in or near the town; for this, among other reasons, that their behavior may be the better observed.

As to their studies, it would be well if they could be taught every thing that is useful, and every thing that is ornamental. But art is long, and their time is short. It is therefore proposed, that they learn those things that are likely to be most useful and most ornamental; regard being had to the several professions for which they are intended.

All should be taught to write a fair hand, and swift, as that is useful to all. And with it may be learned something of drawing, by imitation of prints, and some of the first principles of perspective.

Arithmetic, accounts, and some of the first principles of geometry and astronomy.

The English language might be taught by grammar; in which some of our best writers, as Tillotson, Addison, Pope, Algernon, Sidney, Cato's Letters, &c., should be classics; the styles principally to be cultivated being the clear and the concise. Reading should also be taught, and pronouncing properly, distinctly, emphatically; not with an even tone, which under-does, nor a theatrical, which over-does nature.

To form their style, they should be put on writing letters to each other, making abstracts of what they read, or writing the same things in their own words; telling or writing stories lately read, in their own expressions. All to be revised and corrected by the tutor, who should give his reasons, and explain the force and import of words.

To form their pronunciations, they may be put on making declamations, repeating speeches, and delivering orations; the tutor assisting at the rehearsals, teaching, advising, and correcting their accent.

But if History be made a constant part of their reading, such as the translation of the Greek and Roman historians, and the modern histories of ancient Greece and Rome, may not almost all kinds of useful knowledge be that way introduced to advantage, and with pleasure to the student? As

Geography, by reading with maps, and being required to point out the places where the greatest actions were done, to give their old and new names, with the bounds, situation, and extent of the countries concerned.

Chronology, by the help of Helvicus or some other writer of the kind, who shall enable them to tell when those events happened, what princes were contemporaries, and what states or famous men flourished about that time. The several principal epochs to be first well fixed in their memories.

Ancient Customs, religious and civil, being frequently mentioned in history, will give occasion for explaining them; in which the prints of medals, baso-relievos, and ancient monuments will greatly assist.

Morality, by descanting and making continual observations on the causes of the rise and fall of any man's character, fortune, and power, mentioned in history; the advantages of temperance, order, frugality, industry, and perseverance. Indeed, the general natural tendency of

reading good history must be, to fix in the minds of the youth deep impressions of the beauty and usefulness of virtue of all kinds, public spirit, and fortitude.

History will show the wonderful effects of oratory, in governing, turning, and leading great bodies of mankind, armies, cities, nations. When the minds of youth are struck with admiration at this, then is the time to give them the principles of that art, which they will study with taste and application. Then they may be made acquainted with the best models among the ancients, their beauties being particularly pointed out to them. Modern political oratory being chiefly performed by the pen and press, its advantages over the ancients in some respects are to be shown; as that its effects are more extensive, and more lasting.

History will also afford frequent opportunities of showing the necessity of a public religion, from its usefulness to the public; the advantage of a religious character among private persons; the mischief of superstition, and the excellency of the Christian religion above all others, ancient or modern.

History will also give occasion to expatiate on the advantage of civil orders and constitutions; how men and their properties are protected by joining in societies and establishing government; their industry encouraged and rewarded, arts invented, and life made more comfortable; the advantages of liberty, mischiefs of licentiousness, benefits arising from good laws and a due execution of justice. Thus may the first principles of sound politics be fixed in the minds of youth.

On historical occasions, questions of right and wrong, justice and injustice, will naturally arise, and may be put to youth, which they may debate in conversation and in writing. When they ardently desire victory, for the sake of the praise attending it, they will begin to feel the want, and be sensible of the use, of logic, or the art of reasoning to discover truth, and of arguing to defend it, and convince adversaries. This would be the time to acquaint them with the principles of that art. Grotius, Puffendorff, and some other writers of the same kind, may be used on these occasions to decide their disputes. Public disputes warm the imagination, whet the industry, and strengthen the natural abilities.

When youth are told, that the great men, whose lives and actions they read in history, spoke two of the best languages that ever were, the most expressive, copious, beautiful; and that the finest writings, the most correct compositions, the most perfect productions of human wit and wisdom, are in those languages, which have endured for ages, and will endure while there are men; that no translation can do them justice, or give the pleasure found in reading the originals; that those languages contain all science; that one of them is become almost universal, being the language of learned men in all countries; and that to understand them is a distinguishing ornament; they may be thereby made desirous of learning those languages, and their industry sharp

ened in the acquisition of them. All intended for divinity, should be taught the Latin and Greek; for physie, the Latin, Greek, and French; for law, the Latin and French; merchants, the French, German, and Spanish; and, though all should not be compelled to learn Latin, Greek, or the modern foreign languages, yet none that have an ardent desire to learn them should be refused; their English, arithmetic, and other studies absolutely necessary, being at the same time not neglected.

If the new Universal History were also read, it would give a connected idea of human affairs, so far as it goes, which should be followed by the best modern histories, particularly of our mother country; then of these colonies; which should be accompanied with observations on their rise, increase, use to Great Britain, encouragements and discouragements, the means to make them flourish, and secure their liberties.

With the history of men, times, and nations, should be read at proper hours or days, some of the best histories of nature, which would not only be delightful to youth, and furnish them with matter for their letters, as well as other history, but would afterwards be of great use to them, whether they are merchants, handicrafts, or divines; enabling the first the better to understand many commodities and drugs, the second to improve his trade or handicraft by new mixtures and materials, and the last to adorn his discourses by beautiful comparisons, and strengthen them by new proofs of divine providence. The conversation of all will be improved by it, as occasions frequently occur of making natural observations, which are instructive, agreeable, and entertaining in almost all companies. Natural history will also afford opportunities of introducing many observations, relating to the preservation of health, which may be afterwards of great use. Arbuthnot on Air and Aliment, Sanctorious on Perspiration, Lemery on Foods, and some others, may now be read, and a very little explanation will make them sufficiently intelligible to youth.

While they are reading natural history, might not a little gardening, planting, grafting, and inoculating, be taught and practiced; and now and then excursions made to the neighboring plantations of the best farmers, their methods observed and reasoned upon for the information of youth? The improvement of agriculture being useful to all, and skill in it no disparagement to any.

The history of commerce, of the invention of arts, rise of manufacture, progress of trade, change of its seats, with the reasons and causes, may also be made entertaining to youth, and will be useful to all. And this, with the accounts in other history of the prodigious force and effect of engines and machines used in war will naturally introduce a desire to be instructed in mechanics, and to be informed of the principles of that art by which weak men perform such wonders, labor is saved, and manufactures expedited. This will be the time to show

Constitutions of the Publick Academy In the City of Philadelphia

As Nothing can more effectually contribute to the Cultivation & Improvement of a Country, the Wisdom, Riches and Strength, Virtue and Piety, the Welfare and Happiness of a People, than a proper Education of Youth, by forming their Manners, improving their tender Minds with Principles of Rectitude and Morality, instructing them in the dead & living Languages, particularly their Mother Tongue, and all useful Branches of liberal Arts and Science,

For attaining these great & important Advantages, so far as the present State of our infant Country will admit, and laying a Foundation for Posterity to erect a Seminary of Learning more extensive, and suitable to their future Circumstances, An Academy for teaching the Latin & Greek Languages, the English Tongue, grammatically and as a Language, the most useful living foreign Languages, French, German and Spanish: As Matters of Erudition naturally flowing from the Languages, History, Geography, Chronology, Logic and Rhetorick; Writing, Arithmetick, Algebra, the several Branches of the Mathematicks, Natural & Mechanick Philosophy, Drawing in Perspective, and every other useful Part of Learning and Knowledge, Shall be set up, maintained, and have Continuance, in the City of



Performances and Lectures of the Scholars, in such
Modes, as their respective Masters shall think proper;
and shall have Power, out of their Stock, to make Presents
to the most meritorious Scholars, according to their
several Deserts.

W. Shippen	Thos Lawrence
Robt. Strubbs	Will. Allen
Philip Syng	John Ingles
Ex. Witting	French Francis
Phineas Bond	Wm. Masters
Richard Peters	Noyd Zachary
Abram Taylor	Sam. M. Callahan
Thos Bond	Edo Turner
Geo. Hopkinson	Ch. Franklin
Wm. Plumsted	Thos. Leitch
Josh. Muller	
Thos. Cadwalader	Robt. White
James Norris	Wm. Coleman
	D. Martin Rector
	Thos. Green math. Professor

them prints of ancient and modern machines; to explain them, and let them be copied, and to give lectures in mechanical philosophy.

With the whole should be constantly inculcated and cultivated that benignity of mind, which shows itself in searching for and seizing every opportunity to serve and to oblige; and is the foundation of what is called good breeding; highly useful to the possessor, and most agreeable to all.

The idea of what is true merit should also be often presented to youth, explained and impressed on their minds, as consisting in an inclination, joined with an ability, to serve mankind, one's country, friends, and family; which ability is, with the blessing of God, to be acquired or greatly increased by true learning; and should, indeed, be the great aim and end of all learning.

II.

CONSTITUTIONS OF THE PUBLIC ACADEMY IN THE CITY OF PHILADELPHIA.

As Nothing can more effectually contribute to the Cultivation & Improvement of a Country, the Wisdom, Riches, and Strength, Virtue and Piety, the Welfare and Happiness of a People, than a proper Education of Youth, by forming their Manners, imbuing their tender Minds with Principles of Rectitude and Morality, instructing them in the dead & living Languages, particularly their Mother-Tongue, and all useful Branches of liberal Arts and Science,

For attaining these great & important Advantages, so far as the present State of our infant Country will admit, and laying a Foundation for Posterity to erect a Seminary of Learning more extensive and suitable to their future Circumstances, An Academy for teaching the Latin & Greek Languages, the English Tongue, grammatically and as a Language, the most useful living foreign Languages, French, German and Spanish: As Matters of Erudition naturally flowing from the Languages, History, Geography, Chronology, Logick and Rhetorick; Writing, Arithmetick, Algebra, the several Branches of the Mathematicks, Natural & Mechanick Philosophy, Drawing in Perspective, and every other useful Part of Learning and Knowledge, shall be set up, maintained, and have Continuance, in the City of Philadelphia in Manner following Twenty-four Persons, to wit, James Logan, Thomas Lawrence, William Allen, John Inglis, Tench Francis, William Masters, Lloyd Zachery, Samuel McCall Jun., Joseph Turner, Benjamin Franklin, Thomas Leech, William Shippen, Robert Strettell, Philip Syng, Charles Willing, Phineas Bond, Richard Peters, Abraham Taylor, Thomas Bond, Thomas Hopkinson, William Plumsted, Joshua Maddox, Thomas White & William Coleman.

All of the City of Philadelphia, shall be Trustees, to begin, and carry into Execution, this good and pious Undertaking; who shall not for any Services, by them as Trustees performed, claim or receive any Reward or Compensation. Which Number shall always be continued, but never exceeded upon any Motive whatever.

When any Trustee shall remove his Habitation far from the City of Philadelphia, reside beyond Sea, or die, the remaining Trustees shall, with all convenient Speed, proceed to elect another, residing in or near the City, to fill the Place of the absenting or deceased Person.

The Trustees shall have general Conventions once in every Month, and may, on special Occasions, meet at other Times on Notice, at some convenient Place within the City of Philadelphia, to transact the Business incumbent on them, and shall, in the Gazette, advertise the Time and Place of their general Conventions.

Nothing shall be transacted by the Trustees, or under their Authority alone, unless the same be voted by a Majority of their whole Number, if at a general Convention, and if at a special Meeting, by the like Majority, upon personal Notice given to each Trustee, at least one day before, to attend.

The Trustees shall, at their first Meeting, elect a President for one Year, whose particular Duty it shall be when present, to regulate their Debates, and state the proper Questions arising from them, and to order Notices to be given, of the Times and Places of their special Conventions. And the like Election shall be annually made, at their first Meeting, after the Expiration of each Year.

The Trustees shall annually choose one of their own Members for a Treasurer, who shall receive all Donations and Money due to them, and disburse and lay out the same, according to their Orders, and at the End of each Year, pay the Sum remaining in his Hands to his successor.

All Contracts and Assurances for Payment of Money to them, shall be made in the Name of the Treasurer for the Time being, and declared to be in Trust for the Use of the Trustees.

The Trustees may appoint a Clerk, whose Duty in particular it shall be, to attend them in their general and special Conventions; to give Notice in Writing to the Members of the Time, & Place, and Design, of any special Meetings; to register all their Proceedings; and extract a State of their Accounts annually, to be published in the Gazette; for which they may pay him such Salary as they shall think reasonable.

The Trustees shall, with all convenient speed, after signing these Constitutions, contract with any Person that offers, who they shall judge most capable of teaching the Latin and Greek Languages, History, Geography, Chronology, and Rhetorick; having great Regard at the same Time to his Polite Speaking, Writing, and Understanding the

English Tongue; which Person shall in Fact be, and shall be stiled, the Rector of the Academy.

The Trustees may contract with the Rector for the Term of Five Years, or less, at their discretion, for the Sum of Two Hundred Pounds a Year.

The Rector shall be obliged, without the assistance of any Usher, to teach twenty Scholars, the Latin and Greek Languages, and at the same time, according to the best of his Capacity, to instruct them in History, Geography, Logick, Rhetorick, and the English Tongue; and Twenty-five Scholars more for every Usher provided for him, who shall be entirely subject to his Direction.

The Rector shall upon all Occasions, consistent with his Duty in the Latin School, assist the English Master, in improving the Youth under his Care, and superintend the Instruction of all the Scholars in the other Branches of Learning, taught within the Academy, and see that the Masters in each Art and Science perform their Duties.

The Trustees, shall, with all convenient Speed, contract with any Person that offers, who they shall judge most capable, of teaching the English Tongue grammatically, and as a Language, History, Geography, Chronology, Logick and Oratory, which Person shall be stiled the ENGLISH MASTER.

The Trustees may contract with the English Master for the Term of Five Years, or less, at their Discretion, for the sum of One Hundred Pounds a Year.

The English Master shall be obliged without the assistance of any Usher, to teach Forty Scholars the English Tongue grammatically, and as a Language; and at the same Time, according to the best of his Capacity, to instruct them in History, Geography, Chronology, Logick, and Oratory; and Sixty Scholars more for every Usher provided for him.

The Ushers for the Latin and Greek School, shall be admitted, and at Pleasure removed, by the Trustees and the Rector, or a Majority of them.

The Ushers for the English School shall be admitted, and at Pleasure removed, by the Trustees and the English Master, or a Majority of them.

The Trustees shall contract with the Usher, to pay him what they shall judge proportionable to his Capacity and Merit.

NEITHER the Rector, nor English Master shall be removed, unless disabled by Sickness, or other natural Infirmary, or for gross voluntary Neglect of Duty, continued after two Admonitions from the Trustees, or for committing infamous Crimes; and such Removal be voted by three Fourths of the Trustees; after which their Salaries respectively shall cease.

The Trustees shall, with all convenient Speed, endeavor to engage Persons capable of teaching the French, Spanish, and German Lan-

guages, Writing, Arithmetick, the several Branches of the Mathematics, Natural and Mechanic Philosophy, and Drawing; who shall give their Attendance, as soon as a sufficient Number of Scholars shall offer to be instructed in those Parts of Learning; and be paid such Salaries and Rewards, as the Trustees shall from Time to Time be able to allow.

EACH Scholar shall pay such Sum or Sums, quarterly, according to the particular Branches of Learning they shall desire to be taught, as the Trustees shall from Time to Time settle and appoint.

No Scholar shall be admitted, or taught within the Academy, without the Consent of the major Part of the Trustees in Writing, signed with their Names.

IN Case of the Disability of the Rector, or any Master established on the Foundation, by receiving a certain Salary, through Sickness, or any other natural Infirmary, whereby he may be reduced to Poverty, the Trustees shall have Power to contribute to his Support, in Proportion to his Distress and Merit, and the stock in their Hands.

FOR the Security of the Trustees, in contracting with the Rector, Masters and Ushers; to enable them to provide and fit up convenient Schools; furnish them with Books of general Use, that may be too expensive for each Scholar; Maps, Draughts, and other Things, generally necessary, for the Improvement of the Youth; and to bear the incumbent Charges that will unavoidably attend this Undertaking, especially in the Beginning; the Donations of all Persons inclined to encourage it, are to be cheerfully and thankfully accepted.

THE Academy shall be open'd with all convenient Speed, by accepting the first good Master that offers, either for teaching the Latin and Greek, or English, under the Terms above proposed.

ALL Rules for the Attendance and Duty of the Masters, the Conduct of the Youth, and the facilitating their Progress in Learning and Virtue, shall be framed by the Masters, in Conjunction with the Trustees.

IF the Scholars shall hereafter grow very numerous, and the Funds be sufficient, the trustees may at their Discretion, augment the Salaries of the Rector or Masters.

THE Trustees, to increase their Stock, may let their money out at interest.

IN general, the Trustees shall have Power to dispose of all Money, received by them, as they shall think best for the Advantage, Promotion, and even Enlargement of this Design.

THE Trustees may hereafter add to or change any of these Constitutions, except that hereby declared to be invariable.

ALL Trustees, Rectors, Masters, Ushers, Clerks, and other Ministers, hereafter to be elected or appointed, for carrying this Undertaking into Execution, shall, before they be admitted to the Exercise of their respective Trusts or Duties, sign these Constitutions, or some others to be hereafter framed by the Trustees in their Stead, in Testimony of their then approving of, and resolving to observe them.

UPON the Death or Absence as aforesaid of any Trustee, the remaining Trustees shall not have Authority to exercise any of the Powers reposed in them, until they have chosen a new Trustee in his Place, and such new Trustee shall have signed the established Constitutions, which if he shall refuse to do, they shall proceed to elect another; and so toties quoties, until the Person elected shall sign the Constitution.

WHEN the Fund is sufficient to bear the Charge, which it is hoped thro' the Bounty and Charity of well disposed Persons, will soon come to pass, poor Children shall be admitted, and taught gratis, what shall be thought suitable to their Capacities and Circumstances.

IT is hoped and expected, that the Trustees will make it their Pleasure, and in some Degree their business, to visit the Academy often, to encourage and countenance the Youth, countenance and assist the Masters, and by all Means in their Power, advance the Usefulness and Reputation of the Design; that they will look on the Students as, in some Measure, their own Children, treat them with Familiarity and Affection; and when they have behaved well, gone thro' their Studies, and are to enter the World, they shall zealously unite, and make all the Interest that can be made, to promote and establish them, whether in Business, Offices, Marriages, or any other Thing for their Advantage, preferable to all other Persons whatsoever, even of equal Merit.

THE Trustees shall in a Body visit the Academy once a Year extraordinary, to view and hear the performances and Lectures of the Scholars, in such Modes, as their respective Masters shall think proper, and shall have Power, out of their Stock, to make presents to the most meritorious Scholars, according to their several deserts.

N. B. The above Constitutions were signed on the 13th of November, 1749; and are to be carried into Execution as early as may be in the ensuing Year, a considerable Sum being already subscribed for that Purpose by a few Hands; who hope, from the known Publick Spirit of the People of Pennsylvania, that such further Sums as are necessary to be subscribed for perfecting this useful Design, will not be wanting.

THOMAS LAWRENCE	BENJAMIN FRANKLIN
WILLIAM ALLEN	THOMAS LEECH
JOHN INGLIS	WILLIAM SHIPPEN
TENCH FRANCIS	ROBERT STRETTELL
WILLIAM MASTERS	PHILIP SYNG
LLOYD ZACHARY	CHARLES WILLING
SAMUEL MCCALL, jr.	PHINEAS BOND
JOSEPH TURNER	RICHARD PETERS
ABRAHAM TAYLOR	JOSHUA MADDOX
THOMAS BOND	THOMAS WHITE
THOMAS HOPKINSON	WILLIAM COLEMAN
WILLIAM PLUMSTED	THOMAS CADWALADER

DAVID MARTIN, *Rector*
THEOPHILUS GREW, *Math. Prof.*

III.

CHARTER to Thomas Lawrence and others, to be trustees of the Academy and Charitable School in the Province of Pennsylvania.

THOMAS PENN and Richard Penn, true and absolute proprietors and governors in chief of the province of Pennsylvania and counties of New Castle, Kent, and Sussex, on Delaware, To all persons to whom these presents shall come, greeting: *Whereas* the well being of a society depends on the education of their youth, as well as, in great measure, the eternal welfare of every individual, by impressing on their tender minds principles of morality and religion, instructing them in the several duties they owe to the society in which they live, and one towards another, giving them the knowledge of languages, and other parts of useful learning necessary thereto, in order to render them serviceable in the several public stations to which they may be called. *And whereas*, it hath been represented to us by Thomas Lawrence, William Allen, John Inglis, Tench Francis, William Masters, Lloyd Zachary, Samuel McCall, junior, Joseph Turner, Benjamin Franklin, Thomas Leech, William Shippen, Robert Strettell, Philip Syng, Charles Willing, Phineas Bond, Richard Peters, Abraham Taylor, Thomas Bond, Joshua Maddox, William Plumstead, Thomas White, William Coleman, Isaac Norris, and Thomas Cadwalader, of our city of Philadelphia, gentlemen, that for the erecting, establishing, and maintaining an academy within our said city as well to instruct youth for reward, as poor children whose indigent and helpless circumstances demand the charity of the opulent part of mankind, several benevolent and charitable persons have generously paid, and by subscriptions promised hereafter to pay into their hands as trustees, for the use of the said academy, divers sums of money, which sums already paid, they, the said trustees, have expended in the purchase of lands well situated, and a building commodious for the uses aforesaid, within our said city in maintaining an academy there as well for the instruction of poor children on charity, as others whose circumstances have enabled them to pay for their learning, for some time past, and in furnishing the said academy with books, maps, mathematical instruments, and other necessities of general use therein, according to the intentions of the donors.

And whereas, the said trustees to facilitate the progress of so good a work, and to perfect and perpetuate the same, have humbly besought us to incorporate them and their successors.

Now know ye, That we favouring such pious, useful, generous, and charitable designs, hoping through the favour of Almighty God, this academy may prove a nursery of virtue and wisdom, and that it will produce men of dispositions and capacities beneficial to mankind in the various occupations of life; but more particularly suited to the infant state of North America in general, and for other causes and considera-

tions us hereto specially moving, *have* granted, ordained, declared, constituted, and appointed, and by these presents *we do*, for us, our heirs, and successors grant, ordain, declare, constitute, and appoint, That the said Thomas Lawrence, William Allen, John Inglis, Trench Francis, William Masters, Lloyd Zachary, Samuel M'Call, junior, Joseph Turner, Benjamin Franklin, Thomas Leech, William Shippen, Robert Strettel, Philip Syng, Charles Willing, Phineas Bond, Richard Peters, Abraham Taylor, Thomas Bond, Joshua Maddox, William Plumstead, Thômas White, William Coleman, Isaac Norris, and Thomas Cadwalader and such others, as shall be from time to time chosen, nominated, or elected in their place and stead, shall be one community, corporation, and body politic, to have continuance for ever, by the name of The Trustees of the Academy and Charitable School in the province of Pennsylvania, and that by the same name, they shall have perpetual succession, and that they and their successors by that name, shall be capable in law to purchase, have, take, receive, and enjoy to them and their successors in fee and in perpetuity, or for any other or lesser estate or estates, any manors, lands, tenements, rents, annuities, pensions, or other hereditaments within the said province of Pennsylvania, or three lower counties of New Castle, Kent and Sussex, by the gift, grant, bargain, sale, alienation, enfeoffment, release, confirmation, or device of any person or persons, bodies politick or corporate, capable to make the same. *And further*, that they may take and receive any sum or sums of money, or any kind, manner, or portion of goods or chattels that shall to them be given, granted or bequeathed by any person or persons, bodies politick or corporate, capable to make a gift, grant, or bequest thereof; and therewith to erect, set up, maintain, and support an academy or any other kind of seminary of learning in any place within the said province of Pennsylvania, where they shall judge the same to be most necessary and convenient for the instruction, improvement, and education of youth in any kind of literature, erudition, arts, and sciences, which they shall think fitting and proper to be taught. *And we do* hereby grant and ordain, That the said trustees and their successors by the name aforesaid, shall be able in law to sue and be sued, plead and be impleaded in any court or courts, before any judge, judges, or justices within the said province of Pennsylvania, the three lower counties of New Castle, Kent, and Sussex, and elsewhere; in all and all manner of suits, complaints, pleas, causes, matters, and demands of whatsoever kind, nature, or form they be; and all and every other matters and things therein to do in as full, ample, and effectual a manner, as any other person or persons, bodies politick or corporate within that part of the Kingdom of Great Britain called England, or within the said province of Pennsylvania, or three lower counties in the like cases may or can do. *And we do* hereby give and grant unto the said trustees and their successors, full power and authority to make, have, and use a common seal with such stamp and inscription as they shall think proper; and the same to change,

break, alter, and renew at their pleasure. *And further*, in order to continue and perpetuate this community and corporation, *We do grant, ordain, and declare*, that when any one or more of the present or future trustees of this academy and school, shall remove his or their habitation or habitations, and shall dwell at the distance of five miles from the seat of the said academy at that time, or shall go and reside out of the province of Pennsylvania, although at a place nearer to the said academy than five miles, or shall happen to die or be otherwise disabled from performing the office and the duty of a trustee or trustees, the other trustees shall, as soon after as they conveniently can, proceed to elect and choose one or more fit person or persons, then residing within five miles of the said academy, and within the said province, to fill the place or places of such absenting, deceased, or disabled person or persons. *And we do also*, for us, our heirs, and successors, give and grant to the said trustees and corporation, and their successors, full power and authority *in* all time and times coming, to make, ordain, and enact all all such rules, ordinances, laws and statutes, and from time to time to alter and amend the same as they shall judge most convenient, reasonable, and needful for the good government of the said community, the management of the affairs thereof, and the effectual promotion of the good ends hereby intended; *provided always*, That the said rules, ordinances, laws, and statutes, be not repugnant to the laws and statutes then in force at the kingdom of Great Britain, or to the laws then in force in our said province of Pennsylvania. *And lastly*, We do, for us and our successors, grant, declare, and ordain, That these our letters patent and charter, and every clause, sentence, and article herein contained shall be in all things firm, valid, sufficient, and effectual in the law unto the said trustees, community, and corporation and their successors, according to the purport and tenor hereof, without any further grant or toleration from us, our heirs, or successors, to be procured or obtained. *In witness* whereof, we have caused these our letters, to be made patent; *witness*, James Hamilton, esq., lieutenant governor and commander in chief, in and over the said province of Pennsylvania, at the city of Philadelphia, the thirteenth day of July, in the twenty-seventh year of the reign of our sovereign lord George the second, who now is king of Great Britain, France, and Ireland, &c., and in the year of our Lord, one thousand seven hundred and fifty-three.

JAMES HAMILTON, [L. S.]

Recorded 16th July, 1753.

IV.

ADDITIONAL CHARTER OF THE COLLEGE, &C. OF PHILADELPHIA, IN PENNSYLVANIA.

THOMAS PENN, and Richard Penn, true and absolute proprietaries of the province of Pennsylvania, and counties of New Castle, Kent, and Sussex, on Delaware; to all persons to whom these presents shall come, greeting:

Whereas it was heretofore represented to us, by Thomas Lawrence, William Allen, John Inglis, Tench Francis, William Masters, Lloyd Zachary, Samuel M'Call, junior, Joseph Turner, Benjamin Franklin, Thomas Leech, William Shippen, Robert Strettell, Philip Syng, Charles Willing, Phineas Bond, Richard Peters, Abraham Taylor, Thomas Bond, Joshua Maddox, William Plumsted, Thomas White, William Coleman, Isaac Norris, and Thomas Cadwalader, of our city of Philadelphia, gentlemen; That they had, at their own expense, and by the donations of many well disposed persons, set up and maintained an academy within our said city, as well for instructing youth for reward, as poor children on charity, and praying us to incorporate them, and their successors for the more effectual carrying on and establishing the same:—

And whereas we, being desirous to encourage such pious, useful, and charitable designs, hoping that the said academy, through the blessing of Almighty God, would prove a nursery of wisdom and virtue, and be the means of raising up men, of dispositions and qualifications beneficial to the publick, in the various occupations of life, and for other causes and considerations us thereto specially moving, did, for us, our heirs and successors, by our charter, under the great seal of our said province, grant, ordain, declare, constitute, and appoint, That the said Thomas Lawrence, William Allen, John Inglis, Tench Francis, William Masters, Lloyd Zachary, Samuel M'Call, junior, Joseph Turner, Benjamin Franklin, Thomas Leech, William Shippen, Robert Strettell, Philip Syng, Charles Willing, Phineas Bond, Richard Peters, Abraham Taylor, Thomas Bond, Joshua Maddox, William Plumsted, Thomas White, William Coleman, Isaac Norris, and Thomas Cadwalader, and their successors, duly elected and nominated in their place and stead, should be one corporation and body politick, to have one continuance for ever, by the name of The Trustees of the Academy and Charitable School in the Province of Pennsylvania, capable to purchase and hold lands, to receive donations, to sue and be sued, to have and to use a common seal, to make rules and statutes, and to do everything needful for the good government and perfect establishment of the said academy, or of any other kind of seminary of learning, which they should think fit to erect, maintain, and support, in any place within the said province of Pennsylvania, for the instruction of youth in any kind of literature, arts,

and sciences, as by our said charter, enrolled in our recorder's office for said province, at the city of Philadelphia aforesaid, may more fully and at large appear.

Now know ye, That we do, for us, our heirs and successors, by these presents, approve of, ratify and fully confirm, to the said trustees and their successors, all and singular, the premises, together with all and singular the matters, clauses, sentences, and articles, contained in our said letters patent and charter, excepting only one article, by these our present letters and charter altered and changed.

Wherefore, by the advice and consent of the said trustees, know ye, That we do will and ordain, that the present trustees of the said academy, to wit: James Hamilton, William Allen, John Inglis, Tench Francis, William Masters, Lloyd Zachary, Samuel M'Call, junior, Joseph Turner, Benjamin Franklin, Thomas Leech, William Shippen, Robert Strettell, Philip Syng, Phineas Bond, Richard Peters, Abraham Taylor, Thomas Bond, Joshua Maddox, William Plumsted, Thomas White, William Coleman, Thomas Cadwalader, Alexander Stedman, and John Mifflin, and such other persons as shall from time to time be nominated or chosen in their place and stead, according to the order and direction of our said recited letters and charter, shall be one community, corporation, and body politick, to have continuance for ever, by the name of The Trustees of the College, Academy, and Charitable School of Philadelphia, in the Province of Pennsylvania; and that, by the same name, they shall have perpetual succession.—

And we do hereby, for us, our heirs and successors, grant, ordain, and declare, That the said trustees and their successors, by that name, shall be able and capable in law, to purchase, have, receive, take, hold, and enjoy, to them and their successors in fee and perpetuity, or for any other lesser estate or estates, any manors, lands, tenements, rents, annuities, pensions, or other hereditaments, within the said province of Pennsylvania, or three lower counties of New Castle, Kent, and Sussex, upon Delaware, by the gift, grant, bargain, sale, alienation, enfeofment, release, confirmation or devise of any person or persons, bodies politick or corporate, capable to make the same; and such manors, lands, tenements, rents, annuities, pensions, or hereditaments, or any lesser estates, rights, or interests of, or in the same, at their pleasure to grant, alien, sell, and transfer in such manner and form, as they shall think meet and convenient; and further, that they may take and receive any sum or sums of money, and any kind, manner, or portion of goods and chattels, that shall be given, sold, or bequeathed to them, by any person or persons, bodies politick or corporate, capable to make a gift, sale, or bequest thereof, and therewith to erect, set up and maintain any other kind of seminary of learning, in any place within the said province of Pennsylvania, where they shall judge the same most necessary and convenient, for the instruction, improvement, and education of youth, in any kind of literature, arts, and sciences, which they shall think proper to be taught.

And we do hereby grant and ordain, That the said trustees and their successors, by the name in this charter mentioned, shall be able in law to sue and be sued, plead and be impleaded in any court or courts, before any judge, judges, or justices, within our said province of Pennsylvania, the three lower counties of New Castle, Kent, and Sussex, on Delaware, and elsewhere; in all and all manner of suits, complaints, pleas, causes, matters, and demands, of whatsoever kind, nature, or form they be; and all and every other matter and thing therein to do, in as full and effectual a manner, as any other person or persons, bodies politick or corporate, within that part of Great Britain called England, or within the said province of Pennsylvania, or three lower counties aforesaid, in the like cases may or can do.

And we do hereby give and grant, unto the said trustees and their successors, full power and authority to make, have, and use one common publick seal, and likewise one privy seal with such devices and inscription, as they shall think proper; and the same, or either of them, to change, break, alter, and renew, at their pleasure.

And whereas the said trustees have, by their petition to ROBERT HUNTER MORRIS, Esq.; our lieutenant governor and commander in chief, in and over our said province of Pennsylvania, and counties of New Castle, Kent, and Sussex, on Delaware, represented, That since our granting our said recited charter, the academy therein mentioned, by the blessing of Almighty God, is greatly improved, being now well provided with masters, not only in the learned languages, but also in the liberal arts and sciences, and that one class of hopeful students has now attained to that station in learning and science, by which, in all well constituted seminaries, youth are entitled to their first *degree*, and which the said students are earnestly desirous to be admitted to; and that it is hoped, from the capacities and diligence of this class, they will hereafter merit admission to the higher degrees in the arts and sciences; from whence the said trustees reasonably expect a succession of youth in this college and academy, equally meritorious and deserving of such publick honours, which are at the same time the strongest incentives to, and the justest rewards of, diligence and merit; and therefore prayed an addition to our recited charter, to empower them and their successors, to admit deserving students to the usual degrees, and to confer such dignity on the masters in the said seminary, as shall seem meet and necessary for its good government and establishment upon this enlargement of the design, for the benefit both of the present and future times. And we being willing to grant this reasonable request of the said trustees, and to give all proper encouragement to an institution so happily begun, and hitherto so successfully carried on, for the benefit of our said province, as well as the neighboring provinces and colonies in America;

Now know ye also, That we do hereby, for us, our heirs and successors, give and grant full power and authority to the said trustees, and their

successors, from time to time, and at all times for ever hereafter, in such manner, and under such limitations, as they shall think best and most convenient, to constitute and appoint a Provost and Vice-Provost of the said college and academy, who shall be severally named and styled Provost and Vice-Provost of the same. And also to nominate and appoint Professors for instructing the students of the same seminary, in all the liberal arts and sciences, the ancient languages, and the English tongue, who shall be severally styled Professor of such art, science, language or tongue, according to each particular nomination and appointment; which Provost, Vice-Provost and Professors, so constituted and appointed, shall be known and distinguished, as one body and faculty, by the name of the Provost, Vice-Provost and Professors of the College and Academy of Philadelphia, in the province of Pennsylvania; and by that name shall be capable of exercising such powers and authorities, as the said trustees and their successors shall think necessary to delegate to them, for the discipline and government of the said college, academy and charitable school; *Provided always*, That the said Trustees, the Provost, and Vice-Provost, and each Professor, before they shall exercise their several and respective powers or authorities, offices and duties, do and shall take and subscribe the three first written oaths, appointed to be taken and subscribed, in and by one act of parliament, passed in the first year of the reign of our late sovereign Lord George the first, intituled, An Act for the further Security of his Majesty's Person and Government; and the Succession of the Crown in the Heirs of the late Princess Sophia, being protestants, and for extinguishing the Hopes of the pretended Prince of Wales, and his open and secret Abettors; and shall also make and subscribe the declaration, appointed to be made and subscribed, by one other act of parliament, passed in the twenty-fifth year of the reign of king Charles the second, intituled, An Act for preventing Dangers which may happen from popish recusants: excepting only the people called Quakers, who, upon taking, making and subscribing the affirmations and declarations, appointed to be taken, made, and subscribed by the acts of general assembly of the province of Pennsylvania, to qualify them for the exercise of civil offices, shall be admitted to the exercise of all and every the powers, authorities, offices, and duties above mentioned, any thing in this provision to the contrary notwithstanding; all which oaths and affirmations we do hereby authorize and empower the lieutenant governor of our said province, or the mayor or recorder of the city of Philadelphia aforesaid, or any two justices of the peace, for the time being to administer.—

Which said trustees, and their successors, being qualified as hereby directed, *we do, by these presents*, for us, our heirs, and successors, establish in their several and respective offices; to have, hold, and enjoy, all and singular the privileges, liberties, advantages, powers, and immunities, herein or hereby given and granted, or meant, mentioned, or in-

tended, to be herein or hereby given and granted, unto them and their successors for ever.

And we do hereby, at the desire and request of the said trustees, constitute and appoint the Reverend William Smith, M. A. to be the first and present provost of the said college and academy, and the Reverend Francis Allison, M. A. to be the first and present vice-provost of the same, who shall also retain the name and style of Rector of the Academy; which offices the said persons shall have and hold only during the pleasure of the said trustees.

And we do further, for us, our heirs, and successors, authorize the said trustees and their successors, to meet on such day or days, as they shall by their laws and statutes appoint, to examine the candidates for admission to degrees in the said college and academy, and also to transact, determine, and settle all the business and affairs of the same. And we do will and ordain, that at all those meetings, such a number of members so met and convened, as shall by the laws and statutes be authorised to transact any particular affairs or business, and the majority of them shall have full power to transact, determine, and settle such affairs and business, in as ample and effectual a manner as if all the said trustees were present; excepting always the nominating, constituting, and discharging the provost, vice-provost and professors, or any of them; in all and every of which acts, there shall be thirteen at least of the members of the said corporation present and consenting.

And we do further, for us, our heirs, and successors, authorize and empower the said trustees, and their successors, met from time to time as aforesaid, to make laws and statutes to regulate, ascertain, and settle the precedence, powers, and duties of the said provost, vice-provost, (or rector) and professors, in the execution of the laws made, or to be made, for the education of the youth, and wholesome government of the said college, academy, and charitable school; and also by these laws and statutes, in such manner and form as they shall think convenient, to empower the provost, vice-provost, and professors, for the time being, to make and execute ordinances, for preserving good order, obedience, and government, as well among the students and scholars, as the several tutors, officers, and ministers, belonging to the said college, academy, and charitable school; and further, by the said laws and statutes, to enact all other matters and things, in and concerning the premises, which may by the said trustees and their successors, be thought conducive to the well being, advancement, and perpetuating the said college, academy, and corporation; *provided always*, that the said laws be not repugnant to the laws and statutes then in force in the kingdom of Great Britain; nor to the laws and statutes then in force in our said province of Pennsylvania.

And we do further, for us, our heirs, and successors, give and grant to the trustees of the said college and academy, That for animating and encouraging the students thereof to a laudable diligence, industry, and

progress in useful literature and science, they and their successors, met together on such day or days as they shall appoint for that purpose, shall have full power and authority, by the provost, and in his absence by the vice-provost, and in the absence of both the provost and vice-provost, by the senior professor, or any other fit person by them authorized and appointed, to admit any the students within the said college and academy, or any other person or persons meriting the same, to any degree or degrees, in any of the faculties, arts, and sciences, to which persons are usually admitted, in any or either of the universities or colleges in the kingdom of Great Britain. *And we do ordain*, That the provost, vice-provost, or other person appointed as aforesaid, shall make, and with his name, sign diplomas or certificates of the admission to such degree or degrees, which shall be sealed with the public seal of the said corporation, and delivered to the graduates as honourable and perpetual testimonials thereof; *provided always*, and it is hereby declared to be our true meaning and express will, That no student or students, within the said college and academy, shall ever, or at any time or times hereafter, be admitted to any such degree or degrees, until such student or students have been first recommended and presented as worthy of the same, by a written mandate, given under the hands of at least thirteen of the trustees of the said college and academy, and sealed with the privy seal belonging to the said corporation, after a public examination of such student or students in their presence, and in the presence of any other persons choosing to attend the same, to be had in the hall of the said college and academy, at least one whole month before the admission to such degree or degrees; *and provided further*, That no person or persons, excepting the students belonging to the said seminary, shall ever, or at any time or times, be admitted to any such degree or degrees, unless with the express mandate of at least two thirds of the whole number of trustees, first to be obtained under their hands and the privy seal aforesaid, to the provost, vice-provost, and professors of the said college and academy directed.

And lastly, we do, for us, and our successors, grant, declare, and ordain, That these our letters patent and charter, and every clause, sentence, and article herein contained, shall be in all things firm, valid, sufficient, and effectual in the law, unto the said trustees, community, and corporation, and their successors, according to the purport and tenor hereof, without any further grant or toleration from us, our heirs, and successors, to be procured or obtained; *provided always*, That the clear yearly value of the messuages, houses, manors, lands, tenements, rents, annuities, or other hereditaments, and real estate of the said corporation, do not exceed the sum of five thousand pounds sterling. In testimony whereof, we have caused these our letters to be made patent, and the great seal of our said province to be hereunto affixed. Witness ROBERT HUNTER MORRIS, Esq., our lieutenant governor and commander in chief, in and over our said province of Pennsylvania, and counties of

New Castle, Kent, and Sussex, on Delaware; this fourteenth day of May, in the twenty-eighth year of the reign of our sovereign lord George the second, king of Great Britain, France, and Ireland, &c. and in the year of our Lord, one thousand seven hundred and fifty-five.

ROBERT HUNTER MORRIS.

V.

[*"Order in Council"* to the Lord High Chancellor to draw up Letters Patent authorizing the collection of funds for the joint benefit of the College, Academy and Charitable School in Philadelphia and of the College of the Province of New York.]

AT THE COURT AT ST. JAMES THE 12TH. DAY OF AUGUST 1763.

The King's most excellent Majesty in Council.

Whereas there was this day read to his Majesty at this Board the joint Petition of William Smith, Doctor in Divinity, Agent for the Trustees of the College, Academy and Charitable School of Philadelphia in the Province of Pennsylvania, and Provost of that Seminary; and of James Jay Doctor in Physic, Agent for the Governors of the College of the Province of New York in the City of New York in America, setting forth—That the great growth of these Provinces and the continual accession of people to them from the different parts of the world, being some years ago observed by sundry of his Majestys good subjects there, they became seriously impressed with a view of the inconveniences like to arise among so mixed a multitude, if left destitute of the necessary means of instruction, differing in Language and Manners unenlightened by Religion, uncemented by a Common Education, strangers to the humane Arts, and to the just use of Rational Liberty.

That these considerations were rendered the more alarming by sundry other circumstances, and particularly the amazing pains which Popish Emissaries were everywhere perceived to take for the propagation of their peculiar tenets, and the many establishments which they were making for this purpose in all parts of America belonging to them; while his Majesty's numerous subjects there, and particularly in the two important and central Provinces aforesaid remained too liable to their corruptions by being spread abroad on a wide frontier, with scarce a possibility of finding a sufficient supply of Protestant Ministers and Teachers for them, so long as opportunities were wanting to educate them there, and but few men of proper qualifications here could be induced to exchange their hopes in these kingdoms for a laborious employment in a remote wilderness where they were to expect but small secular advantage to reward their toil.—That these inconveniences began to be greatly felt not only by the Society for Propagating the Gospel in foreign Parts, but also by the various denominations of other Protestants in his Majesty's Colonies, so that the good purposes which they severally had in view for the support and extension of the Reformed

Religion in these remote countries were like to be grievously affected by the want of fit persons to send forth as instructors and teachers. That from a deep sense of these growing evils the two Seminaries aforesaid, distant about 100 miles from each other were begun in two of the most important and populous trading cities in his Majesty's American Dominions, nearly at the same time and with the same view, not so much to aim at any high improvements in knowledge as to guard against total ignorance; to instil in the minds of youth just principles of Religion, Loyalty and Love of our excellent Constitution; to instruct them in such branches of knowledge and useful arts as are necessary to trade, agriculture and a due improvement of his Majesty's valuable Colonies; and to assist in raising up a succession of faithful instructors and teachers to be sent forth not only among his Majesty's subjects there, but also among his Indian Allies, in order to instruct both in the way of truth, to save them from the corruptions of the enemy, and help to remove the reproach of suffering the emissaries of a false religion to be more zealous and propagating their slavish and destructive tenets in that part of the world, than Britons and Protestants are in promoting the pure form of godliness and the glorious plan of public liberty and happiness committed to them.

That for the better answering these great and important purposes the aforesaid Seminaries are under the direction of the chief officers of government sundry of the Clergy of different denominations, and other persons of distinction in the respective cities where they are placed, and their usefulness has been so generally felt and acknowledged, that amidst all the calamities of an expensive war near ten thousand pounds sterling have been contributed in each of the said Provinces to their support, and some hundreds of youth continually educated on charity and otherwise; But as designs of so extensive a nature have seldom been completed in the most wealthy kingdoms, unless by the united generosity of private benefactors and often by the particular bounty of sovereign princes, the Petitioners are persuaded it will not be thought strange that all the resources in the power of individuals in young Colonies should be found inadequate to such a work, and that the Governors and Trustees of the said Seminaries should *have the just apprehension of seeing all that they have raised for their support speedily exhausted and an end put to their usefulness, unless they can procure assistance from distant places, as the expense of each of them is four hundred pounds sterling yearly above their income; the defraying of which would require an additional capital of above six thousand pounds sterling apiece.*—That, under such circumstances, at a time when the signal success of his Majesty's Arms in America opens a new field for the advancement of divine knowledge there, and renders the design of such Seminaries more peculiarly important, it was hoped that benefactors would not be wanting to give that kind assistance to pious foundations in his Majesty's Colonies, which has always been so readily

bestowed upon every design of a like kind in these kingdoms, and seldom denied to Protestant brethren even in foreign nations—That the Petitioners being accordingly appointed to solicit and receive such assistance, and being sensible that the highest satisfaction which his Majesty's known piety and humanity can derive from the prosperity and extension of his dominions will be to see these advantages improved for enlarging the sphere of Protestantism increasing the number of good men, and bringing barbarous nations within the pale of Religion and Civil Life; they are therefore encouraged humbly to pray—That his Majesty will be pleased to direct that a Royal Brief may be passed under the Great Seal of Great Britain, authorizing them to make a collection throughout the kingdom, from house to house, for the joint and equal benefit of the two Seminaries and Bodies Corporate.—

His Majesty taking the same into his royal consideration, and being willing to give encouragement to every design that may tend to the good of his Colonies and the advancement of Religion and Virtue, is graciously pleased, with the advice of his Privy Council, to Order, as it is hereby Ordered—That the Right Honorable the Lord High Chancellor of Great Britain do cause Letters Patent to be prepared and passed under the Great Seal for the collections of the charity of all well disposed persons for the assistance and benefit of the said two Seminaries, according to the prayer of the said Petition.

(Signed)

W. SHARPE.

VI.

[Joint-Letter of the Archbishop of Canterbury, Thos. and Richard Penn, and the Rev. Samuel Chandler, D. D., relative to the collection made in England and the original foundation of the Academy.]

To the Trustees of the College etc. of Philadelphia.

GENTLEMEN, We cannot omit the opportunity which Dr. Smith's return to Philadelphia give us of congratulating you on the great success of the collection which he came to pursue, and of acknowledging your obliging addresses of thanks to us for the share we had in recommending and encouraging this design. Such a mark of your attention to us will, we doubt not, excuse our hinting to you what we think may be farther necessary to a due improvement of this collection and the further prosperity of the Institution under your care.

This Institution you have professed to have been originally founded and hitherto carried on for the general benefit of a mixed body of people. In his Majesty's Royal Brief, it is represented as a Seminary that would be of great use for raising up able instructors and teachers, as well as for the service of the Society for propagating the Gospel in foreign parts, as for other Protestant denominations in the Colony.

At the time of granting this collection, which was solicited by the Provost, who is a Clergyman of the Church of England, it was known that there were united with him a Vice Provost who is a Presbyterian, and a principal Professor of the Baptist Persuasion, with sundry inferior Professors and Tutors, all carrying on the education of youth with great harmony; and people of various denominations have hereupon contributed liberally and freely.

But jealousies now arising less this foundation should afterward be narrowed and some party endeavor to exclude the rest, or put them on a worse footing than they have been from the beginning, or were at the time of this collection, which might not only be deemed unjust in itself, but might likewise be productive of contentions unfriendly to Learning and hurtful to Religion; we would therefore recommend it to you to make some fundamental Rule or Declaration to prevent inconveniences of this kind; in doing of which, the more closely you keep in view the plan on which the Seminary was at the Time of obtaining the Royal Brief, and on which it has been carried on from the beginning, so much the less cause we think you will give for any party to be dissatisfied.

Wishing continual prosperity and peace to the Institution, we are with great Regard, Gentlemen Your faithful Friends & Servants

THO. CANT.

THO. & RICH PENN.

SAM CHANDLER.

LONDON *April 9th 1764.*

I as a Trustee approve of this Letter.

Witness my Hand.....

WILL: ALLEN

VII.

[The fundamental Resolve or Declaration of the Trustees of the College, etc. not to narrow the original foundation.]

In consequence of the foregoing letter, a Committee had been appointed by the Trustees to frame a fundamental Resolve or Declaration and on the 14th of June, 1765, the following was submitted to the Trustees, read and agreed to:

“The Trustees being ever desirous to promote the Peace and Prosperity of this Seminary, and to give satisfaction to all its worthy benefactors, have taken the above Letter into their serious consideration and perfectly approving the sentiments therein contained, do order the same to be inserted in their books, that it may remain perpetually *declaratory* of the present *wide* and excellent plan of this Institution, which hath not only met with the approbation of the great and worthy

personages above mentioned, but even the Royal Sanction of his Majesty himself. They further *declare* that they will keep this plan closely in their view and use their *utmost endeavors* that the same *be not narrowed*, nor the members of the Church of England or those dissenting from them in any future election to the principal offices mentioned in the aforesaid Letter be put on *any worse footing* in this Seminary than they were at the time of obtaining the Royal Brief. They subscribe this with their names and ordain that the same be read and subscribed by every new Trustee that shall hereafter be elected before he takes his seat at the Board."

Richard Peters, President, June 14, 1764.

James Hamilton, June 14, 1764.

Thomas White, June 14, 1764.

Amos Strettell, June 14, 1764.

Thomas Cadwalader, June 14, 1764.

Thomas Willing, June 14, 1764.

Theophilus Bond, June 14, 1764.

John Redman, June 14, 1764.

Wm. Coxe, June 14, 1764.

William Plumsted, June 14, 1764.

Phineas Bond, June 14, 1764.

Benjamin Chew, June 14, 1764.

Edward Shippen, junior, June 14, 1764.

William Coleman, June 14, 1764.

Joseph Turner, June 14, 1764.

Jacob Duché, June 14, 1764.

Lynford Lardner, June 14, 1764.

Benjamin Franklin, June 14, 1764.

William Shippen, June 14, 1764.

Alexander Stedman, June 14, 1764.

John Inglis, Sept. 11, 1764.

John Penn, Oct. 9, 1764.

John Lawrence, Nov. 19, 1765.

John Allen, May 30, 1769.

William Jones, May 24, 1771.

Richard Penn.

Samuel Powel.

Thomas Mifflin.

William White.

James Tilghman.

Robert Morris.

Francis Hopkinson.

George Clymer.

Alexander Wilcocks.

John Cadwalader.

James Wilson.

Thomas Fitzsimmons, Mar. 13, 1789.

Henry Hill, Mar. 13, 1789.

Robert Blackwell, Mar. 13, 1789.

Samuel Miles, Mar. 13, 1780.

William Bingham, Mar. 16, 1789.

William Lewis, Mar. 16, 1789.

John Nixon, Mar. 23, 1789.

Robert Hare, Mar. 23, 1789.

Caspar Wistar, jr., Mar. 23, 1789.

Richard Peters, Mar. 31, 1789.

Edward Bond, June 26, 1790.

David H. Cunningham, Aug. 17, 1790.

VIII.

Report of the Committee appointed by the Assembly of the Commonwealth of Pennsylvania, to inquire into the state of the College of Philadelphia.

We the Committee appointed to inquire into the state of the College of Philadelphia beg leave to report, that having made inquiry into the Foundation and State of the said College, do find that the said College was instituted upon a broad and catholic Foundation having equal respect to all denominations of christians, That the same was endowed by the charitable donations of well disposed people, public lotteries and general benevolence of all Societies.

That the Charter of said College contains a special clause, providing that the Trustees thereof shall take an oath of allegiance to the King of Great Britain, before they can proceed to any official act,—that divers of the late Trustees of the said College have during the present contest with Great Britain joined the British Army and now stand attainted as traitors—that the said Corporation in its general management and conduct has shown an evident hostility to the present Government and Constitution of this State, and in divers particulars, enmity to the common cause.—That the funds thereof are now utterly inadequate to the purposes of Education, and will require some further support to give it that utility, credit and respect which a Seminary of Learning ought to have. That by an Act of Assembly of the 13th. of June 1777 entitled “An Act to oblige etc.” Divers of the Trustees became disqualified to act officially, and your Committee have been advised that the disqualifications have not been removed by any subsequent Act. That your Committee also have sufficient reason to believe that the fair and original plan of equal privileges to all denominations hath not been fully adhered to.

From all these circumstances your Committee are of opinion that there would be sufficient ground to model the Charter and Government of the said College so as to answer the original purpose of the said Institution. But when it is considered that Universities and Colleges have a powerful influence on the interest and government of every State and that the safety and happiness of the people are closely connected with and dependent upon the education of youth, your Committee are of opinion that a Bill should be brought in effectually to provide suitable funds for the said College to secure to every denomination of christians equal privileges and establish the said College on a liberal foundation in which the interests of American Liberty and Independence will be advanced and promoted and obedience and respect to the Constitution of the State preserved.

JO: GARDNER

JOHN SMILIE

WM. HOLLINGSHEAD,

JOHN MORRIS Junior, Clerk.

IX.

[The act of Nov. 27, 1779, dispossessing the Trustees of the College of Philadelphia of their charter privileges and estates.]

An Act to confirm the estates and interests of the college, academy, and charitable school of the city of Philadelphia, and to amend and alter the charters thereof, conformably to the revolution and to the constitution and government of this commonwealth, and to erect the same into a university.

SECTION 1. WHEREAS the education of youth has ever been found to be of the most essential consequence, as well to the good government of states, and the peace and welfare of society, as to the profit and ornament of individuals, insomuch that from the experience of all ages, it appears that seminaries of learning, when properly conducted, have been publick blessings to mankind, and that on the contrary, when in the hands of dangerous and disaffected men, they have troubled the peace of society, shaken the government, and often caused tumult, sedition, and bloodshed.

SECTION 2. *And whereas* the college, academy, and charitable school of the city of Philadelphia, were at first founded on a plan of free and unlimited catholicism; but it appears that the trustees thereof, by a vote or by-law of their board, bearing date the fourteenth day of June in the year of our Lord one thousand seven hundred and sixty-four, have departed from the plan of the original founders, and narrowed the foundation of the said institution.

SECTION 3. *Be it therefore enacted, and it is hereby enacted, by the representatives of the freemen of the commonwealth of Pennsylvania, in general assembly met, and by the authority of the same,* That the charter of the said seminary, granted by the late proprietaries of Pennsylvania, bearing date the thirtieth day of July, in the year of our Lord one thousand seven hundred and fifty-three, whereby certain persons were incorporated by the name, style, and title of The Trustees of the Academy and Charitable School in the province of Pennsylvania, and the additional charter, granted by the same proprietaries, bearing date on the fourteenth day of May, in the year of our Lord one thousand seven hundred and fifty-five, by which the trustees of the same academy and charitable school were again incorporated, by the name, style, and title of The Trustees of the College, Academy, and Charitable School of the city of Philadelphia, in the province of Pennsylvania, together with all and singular the rights, powers, privileges, emoluments, and advantages, and also all the estates, claims, and demands to the same corporation belonging discharged from the afore recited vote or by-law of the said trustees, confining and narrowing the true and original plan of the said institution, which vote or by-law, and all others, contrary to the true design and spirit of the said charter, are hereby declared to be

void, be and they are in and by this act, ratified and confirmed to, and for the use and benefit of the same seminary for ever.

SECTION 4. And to the end that the trustees herein after named and appointed may be the better enabled to effectuate the pious and praiseworthy designs of the founders, benefactors, and contributors of the said college, academy, and charitable school of Philadelphia,

SECTION 5. *Be it further enacted by the authority aforesaid*, That it shall and may be lawful for the supreme executive council of this state to reserve such and so many of the confiscated estates, yet unsold and unappropriated, as to them shall appear necessary, in order to create a certain fund for the maintenance of the provost, vice-provost, masters and assistants, and to uphold and preserve the charitable school of the said university.

SECTION 6. *Provided always*, That the yearly income of such estates, so reserved and appropriated, to the use of the said university, do not exceed the sum of fifteen hundred pounds, computing wheat at the rate of ten shillings per bushel.

SECTION 7. *And provided also*, That such reservation be from time to time laid before the general assembly of this state, for their approbation and confirmation.

SECTION 8. *Provided always, and be it enacted by the authority aforesaid*, That the ratifying and confirming the said charter, or any thing herein contained, shall not extend or be construed to extend to the confirmation or establishing of any of the said trustees, in the said charter named, or deriving by any election, or pretended election, or appointment by, from, or under them, or any of them, nor to any provost, vice-provost, professor, or other minister or officer of the said seminary, other than such as are hereby, or may hereafter be appointed, (the said board and the faculty being hereby dissolved and vacated) nor shall the same extend to such parts of the charter, as in and by this act are or may be abrogated, annulled, altered or supplied.

SECTION 9. *And be it further enacted by the authority aforesaid*, That from and after the passing of this act, the superintendence and trust, together with all and singular the powers, authorities and estates, real, personal and mixed, of the said college, academy, and charitable school, shall pass to, devolve upon, and be vested in the president of the supreme executive council of this commonwealth, the vice-president of the same council, the speaker of the general assembly, the chief justice of the supreme court of judicature, the judge of admiralty, and the attorney-general for the time being, in virtue of their several offices, and the senior minister in standing of the episcopal churches and congregations, and the senior minister in standing of the presbyterian churches, and the senior minister in standing of the baptist churches, and the senior minister in standing of the Lutheran churches, and the senior minister in standing in the German Calvinist churches, and the senior minister in standing in the Roman churches, whose churches or

houses of publick worship are or shall be in the city of Philadelphia, or within two miles of the old court house on High street, in the said city, together with the honourable Benjamin Franklin, doctor of laws, minister plenipotentiary from the United States of America to his most christian majesty; the honourable William Shippen, Frederick Muhlenberg and James Searle, esquires, delegates in the congress of the said United States for Pennsylvania; the honourable William Augustus Atlee, esquire, and the honourable John Evans, esquire, justices of the supreme court of judicature; Timothy Matlack, esquire, secretary of the supreme executive council of this state; David Rittenhouse, esquire, treasurer of this state; Jonathan Bayard Smith, esquire; Samuel Morris, senior, esquire; George Bryan, esquire; Thomas Bond, doctor of physick; and James Hutchinson, doctor of physick; which said civil officers, ministers of the gospel and others herein mentioned and appointed, for and during their continuance in the said office and stations respectively, their abode in this state, and lawful capacity to act, and their successors for ever hereafter, shall be, remain, and continue the trustees aforesaid, by the name, style, and title of The Trustees of the University of the State of Pennsylvania, and shall from henceforth have, hold, use, exercise, and enjoy all the powers, authorities, and advantages of the estates, rights, claims, and demands of the trustees appointed by, or in pursuance of the charters of the said corporation, or either of them, instead of the said trustees appointed by, or deriving under the said charter, or pretending so to do, in trust, nevertheless, for the proper use of the said university forever.

SECTION 10. *Provided always*, That if any trustee of the said university shall take any charge or office under the said trustees, other than that of treasurer, his place shall thereby be vacated, and in the case of a minister of the gospel taking such charge or office, or neglecting to qualify according to the directions of this act, within one month after personal notice given of his coming to such trust, the next minister in seniority, of the same denomination, shall succeed him, such seniority to be accounted from the time of settlement of such person as minister of a congregation in or near the said city.

SECTION 11. *Provided also*, That in case the choice of a new trustee, in the room and stead of any of the persons last named, or their successors, shall be disallowed by the house of assembly within six months, the trustees shall be obliged to make choice of some other person.

SECTION 12. *And be it further enacted by the authority aforesaid*, That instead of the oath or affirmation and declaration which were enjoined and required to be taken and made, by the second or additional charter, herein before referred to, of the said corporation, by the trustees, provost, vice-provost, and professors of the said college, academy, and charitable school, which oath or affirmation and declaration, being totally inconsistent with the independence and constitution of this commonwealth, are hereby abrogated and repealed, the said trustees herein

before appointed, and their successors, and the provost, vice-provost, and professors, and every of them, hereafter to be appointed in such manner and form as herein is directed and required, before he or they enter upon the duties of their trust or office, shall before two justices of the peace of the city of Philadelphia, or of some county of this state, take and subscribe the oath or affirmation prescribed by the fortieth section of the constitution of this commonwealth, to be taken by the officers of this state, and also the oath or affirmation of allegiance, directed to be taken by the same officers, in and by the seventh and eighth sections of an act of assembly, made and passed the fifth day of December, in the year of our Lord one thousand seven hundred and seventy-eight, intituled, "*A further supplement to the act, intituled, An Act for the further security of the government,*" and shall also take an oath or affirmation for the faithful discharge of their trust or office aforesaid.

SECTION 13. *And be it further enacted by the authority aforesaid,* That all and every the clause and clauses in the said charters, wherein and whereby the trustees of the said college, academy, and charitable school are directed and enjoined to make their rules, ordinances and statutes, not repugnant to the laws in force in the kingdom of Great Britain, nor to the laws in force in the province of Pennsylvania, be, and they are hereby annuled, repealed, and made void; and the trustees herein and hereby appointed, are required and enjoined to review the rules, ordinances, and statutes heretofore made by the former trustees of the said seminary, which, so far as they are repugnant to the constitution and laws of this state, are hereby repealed, and to frame the same, if necessary, and all rules, ordinances, and statutes hereafter to be made, consistent with the constitution and laws of this commonwealth.

SECTION 14. *And be it further enacted by the authority aforesaid,* That the business of the said corporation shall and may be transacted, performed, and determined by the major vote of a meeting of seven at least of the trustees appointed by this act, and their successors, duly notified and called, other than the choice of new trustees, the nominating and constituting, or the dismissing of the future provost, vice-provost or professors, or any of them; or the alienation or leasing of real estates, for more than seven years, or any extraordinary and new expenditure of the income, or other personal estate of the said corporation, or the altering any salary, or the granting degrees to the scholars of the said university, or to other persons, or to the making any ordinance, statute, or by-law; which several enumerated acts and doings may be transacted and performed by a majority of at least eleven of the said trustees, duly notified and convened as aforesaid, and not otherwise.

SECTION 15. *And be it further enacted by the authority aforesaid,* That the clause in the first charter of the said corporation, whereby the trustees thereof were limited to be inhabitants of Pennsylvania, residing within five miles of the academy and school aforesaid, although

license was given in the said charter, to set up the same at any place within the said province, which the said trustees should judge to be most convenient, so far as the same clause limits the appointment of trustees to persons residing within five miles of the said academy and school, be, and the same is hereby annulled, repealed, and made void.

SECTION 16. *And be it further enacted by the authority aforesaid,* That the trustees hereinbefore appointed, and their successors, shall and may ask, demand, sue for, recover, and receive all evidences, mortgages, specialties, deeds, and instruments, and all papers, books of account and record, and the library, philosophical apparatus, and seals of the said corporation; and all debts, dues, and demands to the same owing, belonging, accruing, or appertaining. And in case any person or persons having the custody of the said library, apparatus, mortgages, specialties, deeds, or instruments, or other papers, books of records of the said corporation, or having possession of the real estate of the said corporation, or any part thereof, shall refuse to deliver up the same when demanded, it shall and may be lawful for the trustees of the said college to summon any person so refusing before any two justices of the peace of the city or the county where the said real estate lies, or the detainer of any of the records, or other articles aforesaid, resides, who are hereby authorized and empowered to inquire into the said complaint, in a summary way, and give judgment therein as to them shall seem meet according to the merits and justice of the case; and if such judgment be given against the detainer of any of the said deeds, specialties, mortgages or other articles before enumerated, and if such detainer shall still refuse to deliver the same, it shall and may be lawful for the said justices, and they are hereby required to commit such refuser to prison, there to remain without bail or mainprise, until the said judgment be complied with. And in the case of real estate, the said justices shall carry such judgment into execution, by issuing a writ of possession to the sheriff of the county, in the same manner as they are authorized to do by an act of assembly, intituled, "*An Act for the sale of goods distrained for rent, and to secure such goods to the person distraining the same, for the better security of rents, and for other purposes therein mentioned,*" in case of tenants holding over their terms: *Provided always,* That if either of the said parties shall demand a jury to be summoned, to try the said matter in dispute, the said justices shall cause a jury forthwith to come before them thereupon, in the same manner as juries are had in the case of tenants holding over their terms as aforesaid; and the said justices shall give judgment pursuant to the verdict of such jury, and proceed to the execution thereof, as is herein and hereby directed.

SECTION 17. *And be it further enacted by the authority aforesaid,* That the civil officers, ministers of the gospel, and other persons by this act constituted and appointed trustees of the said university, and their successors duly chosen, nominated and appointed, be one community, body politick and corporate, to have perpetual succession and continuance

for ever, by the name, style, and title as aforesaid, and that by the said name they shall be capable and able in law to sue and be sued, have and make a common seal, and the same at their pleasure to break and alter, to make rules and statutes, and to do everything necessary and needful for the good government and perfect establishment of the said university; and the provost, vice-provost and professors hereafter to be appointed and constituted by the trustees aforesaid, shall be named, styled, and intitled, The Provost, Vice-Provost, and Professors of the same University; and the name, style, and title of the body or faculty, composed of the said provost, vice-provost, and professors, shall be, The Provost, Vice-Provost, and Professors of the University of the state of Pennsylvania.

SECTION 18. *And be it further enacted by the authority aforesaid, That the said trustees shall at all times, when required, submit the books, accounts, and economy of the said corporation, to the free examination of visitors to be appointed from time to time by the representatives of the freemen of this commonwealth in general assembly met.*

SECTION 19. *And be it further enacted by the authority aforesaid, That the trustees appointed by this act, or a majority of them, shall meet in the hall of the university aforesaid, in the forenoon on the first Wednesday in December next, and after being duly qualified as this act prescribes, proceed to the execution of their trust.*

JOHN BAYARD, *speaker.*

*Enacted into a law, at Philadelphia, on Saturday, the
27th day of November, A. D. 1779.*

THOMAS PAINE, *clerk of the general assembly.*

X.

[Act of Assembly passed 6th of March, 1789, reinstating the trustees of the College, Academy, and Charitable School of Philadelphia.]

An Act to repeal part of an act, intituled, "An Act to confirm the Estates and Interests of the College, Academy, and Charitable School of the city of Philadelphia, and to amend and alter the charters thereof, conformably to the revolution and to the constitution and government of this commonwealth, and to erect the same into a University."

SECTION 1. WHEREAS by the constitution of this commonwealth, it is declared and provided, "That all religious societies or bodies of men, heretofore united or incorporated for the advancement of religion or learning, or for other pious and charitable purposes, shall be encouraged and protected, in the enjoyment of the privileges, immunities, and estates, which they were accustomed to enjoy, or could of right have enjoyed, under the laws and former constitution of this state."

And whereas, by two charters of incorporation, granted by the late proprietaries of Pennsylvania, there existed within this commonwealth, on the twenty-seventh day of November, in the year of our Lord one thousand seven hundred and seventy-nine, an ancient corporation and body politick, by the name, style, and title of "The Trustees of the College, Academy, and Charitable School of Philadelphia, in the province of Pennsylvania," which corporation, at the time of passing the act, herein after mentioned, was seized, possessed of, and intituled unto many rights and franchises, and divers estates, real, personal, and mixed, and by the constitution and laws of this state, was intituled to the publick protection and encouragement, in the enjoyment and free use and exercise thereof, in conformity to the original design, will, and intention of the founders, donors, and benefactors of the said seminary of learning, in the same manner as it could of right have held, occupied, and enjoyed the same, under the former laws and constitution of this state.

And whereas, by the said herein after mentioned act, which was passed on the said twenty-seventh day of November, in the year of our Lord one thousand seven hundred and seventy-nine, the said trustees and corporation, and also the provost, vice-provost, professors, and all other masters, teachers, ministers, and officers of the said college, academy, and charitable school, were without *trial by jury*, legal process, or proof of misuser or forfeiture, deprived of their said charters, franchises, and estates, and the said board of trustees and faculty were declared to be "dissolved and vacated, and the superintendence and trust, together with all and singular the powers, authorities, and estates, real, personal, and mixed, of the said college, academy, and charitable school, were by the said act, declared to pass to, devolve upon, and be vested in a new corporation or body politick thereby created and established, by the name, style, and title of 'The Trustees of the University of the state of Pennsylvania,' to have, hold, use, exercise, and enjoy all the powers, authorities, and advantages of the estates, rights, claims, and demands of the trustees heretofore appointed by or in pursuance of the charters of the said (ancient) corporation or either of them;" all which is repugnant to justice, a violation of the constitution of this commonwealth, and dangerous in its precedent to all incorporated bodies, and to the rights and franchises thereof.

SECTION 2. *Be it therefore enacted, and it is hereby enacted by the representatives of the freemen of the commonwealth of Pennsylvania in general assembly met, and by the authority of the same*, That so much and all such parts of an act of general assembly of this commonwealth, passed on the said twenty-seventh day of November, in the year of our Lord one thousand seven hundred and seventy-nine, intituled, "An Act to confirm the estates and interests of the college, academy, and charitable school of the city of Philadelphia, and to amend and alter the charters thereof, conformably to the revolution and to the constitution and government of this commonwealth, and to erect the same into a uni-

versity," as touch, or in any wise concern, or relate to the said ancient corporation, which was styled and known by the said name and title of "The Trustees of the College, Academy, and Charitable School of Philadelphia, in the province of Pennsylvania," or the said charters thereof, or either of them, or as touch or in any wise concern or relate to the former rights, franchises, immunities, or estates, real, personal, or mixed thereof, or as tend to disqualify or disable the said trustees to act as a body politick, under the charters aforesaid, or to disqualify, deprive, or disable the body and faculty of the college and academy, known and distinguished in the charter, dated the fourteenth day of May, one thousand seven hundred and fifty-five, by the name, style, and title of "The Provost, Vice-Provost, and Professors of the College and Academy of Philadelphia, in the province of Pennsylvania," or any of them, from carrying on the design and purposes of the said college, academy, and charitable school, or to disfranchise or deprive them, or any of them, of any privileges, immunities, or estates, whatsoever, or of any part or parcel thereof, or as vests the same or purports and intends to vest the same, or any part or parts thereof, in "The Trustees of the University of the state of Pennsylvania," shall be, and the same and every such part and parts thereof, is and hereby are repealed and made null and void, to all intents and purposes whatsoever.

SECTION 3. *And be it further enacted by the authority aforesaid,* That the trustees of the college, academy, and charitable school aforesaid, who were deprived and disabled, or intended so to be, by, and in pursuance of the said act, and the survivors of them and their successors, by the name, style, and title of "The Trustees of the College, Academy, and Charitable School of Philadelphia, in the commonwealth of Pennsylvania," and the provost, vice-provost, and professors, who as a faculty, were deprived and disabled, or intended so to be, by, and in pursuance of the said act, and the survivors of them and their successors, by the name and style of "The Provost, Vice-Provost, and Professors of the College and Academy of Philadelphia, in the commonwealth of Pennsylvania," shall be reinstated and restored, and they and each of them are hereby reinstated and restored to all and singular the rights, franchises, emoluments, offices, trusts, and estates, real, personal, and mixed, which they and each of them held and enjoyed, or ought or could of right have had, held, and enjoyed, or were intitled unto, according to the said charters and the laws and constitution of this state, on the said twenty-seventh day of November, in the year of our Lord one thousand seven hundred and seventy-nine; and they and each of them and their successors, shall, and may ask, demand, sue for, recover, and receive the same and each and every part and parcel thereof, and shall hold and enjoy, use, and exercise the same, and every part and parcel thereof, in the same manner and as fully and freely as if the said act had never been passed. *Excepting always,* so much of the rents, issues, and profits of the said real estate and estates, as were received

by the said trustees of the university before the second day of March instant, which shall be considered, and they are hereby considered, as having been duly laid out by and expended, in the education of youth, and therefore no account shall be rendered thereof; and *excepting also*, such sum or sums of money as have been paid in discharge of the just debts, contracts, and engagements of them, "The Trustees of the said College, Academy, and Charitable School," entered into and subsisting on or before the said twenty-seventh day of November, in the year of our Lord one thousand seven hundred and seventy-nine; and *excepting also*, such bonds, mortgages, and other specialties, of the former estate of the said last mentioned trustees, as have been transferred, cancelled, or discharged by them, the trustees of the university, for the value of which only (without any account of the interest, actually received) they shall be accountable to the trustees of the said college, academy, and charitable school; and *excepting lastly*, certain lots of ground in the town of Norris, and county of Montgomery, which were given for the publick use and service of the said county, and certain other lots which have been contracted for, sold, and conveyed by the said trustees of the university, for the purpose of building and improving in the said town; for the value of which lots only as they were contracted for, sold, and payment received by the said trustees, they shall be liable and accountable to the trustees of the said college, academy, and charitable school, and the said lots and every of them shall be, and hereby are confirmed, to the several purchasers thereof, on the payment of the purchase money and arrears thereof, yet due to the trustees of the said college, academy, and charitable school, in the same manner as such purchase money and arrears thereof yet due, ought to have been paid to the trustees of the said university, according to the several contracts for the sale and conveyance of the said lots duly and *bona fide* made by them before the third day of February last.

SECTION. 4. *And be it further enacted by the authority aforesaid*, That the trustees of the said college, academy, and charitable school and their successors, by the name, style, and title of The Trustees of the College, Academy, and Charitable School of Philadelphia, in the commonwealth of Pennsylvania, and the provost, vice-provost, and professors of the said college and academy and their successors, by the name and style of The Provost, Vice-Provost, and Professors of the College and Academy of Philadelphia, in the commonwealth of Pennsylvania, shall respectively be intituled to, and shall have and pursue the like speedy, summary, and effectual means and remedies, for regaining and reinstating themselves in, and for having and possessing themselves of all and singular the rights, franchises, offices, trusts, and immunities, and estates, real, personal, and mixed, to which they or either or any of them are in, and by this act restored, or which is hereby vested in them or either or any of them, together with all books, papers, and writings, touching or concerning the same or any part thereof, as were

given, or mentioned and intended to be given, in and by the said in part recited act, and also in and by any other act or acts of general assembly of this commonwealth, to the trustees of the university therein mentioned, or which they could thereby have or pursue for acquiring or possessing themselves of all or any part or parts of the estate or estates, real, personal, or mixed, rights, franchises, offices, trusts, or immunities, in and by the said in part recited act, transferred to or vested in them the said trustees of the university aforesaid, or of any books, papers, or writings, relating thereto; and all and every person and persons are hereby enjoined and required to govern and demean themselves accordingly, under the like pains and penalties as are in and by the said acts mentioned.

Signed by order of the house,

RICHARD PETERS, *speaker.*

Enacted into a law, at Philadelphia, on Friday the sixth day of March, in the year of our Lord one thousand seven hundred and eighty-nine.

PETER ZACHARY LLOYD, *clerk of the general assembly.*

XI.

Act of Assembly passed 30th of September, 1791, uniting the University of the State of Pennsylvania, and the College, Academy and Charitable School of Philadelphia, under the title of the "University of Pennsylvania."]

An Act to unite the university of the State of Pennsylvania, and the college, academy, and charitable school of Philadelphia, in the commonwealth of Pennsylvania.

WHEREAS the trustees of the university of the state of Pennsylvania, and the trustees of the college, academy, and charitable school of Philadelphia, in the commonwealth of Pennsylvania, by their several petitions have set forth, that they have agreed to certain terms of union of the said two institutions, which are as follow:

First. That the name of the institution be "The University of Pennsylvania," and that it be stationed in the city of Philadelphia.

Second. That each of the two boards shall elect, from among themselves, twelve persons, who, with the governor for the time being, shall constitute the board of trustees of the university of Pennsylvania; and that the governor shall be president.

Third. That the professors which shall be deemed necessary to constitute the faculty in the arts and medicine, respectively, shall be taken from each institution equally; and in case of an odd number, such one to be taken from either by the choice of the trustees; and that the provost and vice-provost, or the principal officer or officers of the faculty, by whatever name or names they may be called, shall be chosen from among the professors so appointed.

Fourth. That charity schools shall be supported, one for boys, and the other for girls.

Fifth. That for the future every vacancy in the board, except that of governor, shall be filled up by election by ballot, by a majority of the members present, at any meeting of the new board, the members present to be at least thirteen; that due and timely notice of such election be at all times given, and that no person shall be elected to fill up such vacancy at the same meeting in which he shall be nominated.

Sixth. That the funds and property of the institutions shall be united, and vested in the new trustees.

Seventh. That the professors and officers composing the faculty shall be elected by a majority of the members present at any meeting of the new board, the number present to be at least thirteen; that due and timely notice of such election shall at all times be given, and that no person or persons shall at any time be elected such professor or officer at the same meeting in which he shall be nominated.

Eighth. That no professor or officer of the faculty shall be removed by a less number than two thirds of the members present at any meeting of the new board, the members present to be at least thirteen; and that due and timely notice of such intended removal shall at all times be given, and that no person or persons shall at any time be removed at the same meeting in which such removal shall be proposed.

Ninth. That the board of trustees shall annually lay before such persons, as the legislature shall in the incorporating act direct, a statement of the funds of the institution.

And the said trustees by their several petitions have prayed, that a law may be passed to enable them to carry the said terms of union into effect, and to incorporate them in one body, according to the purpose and intention expressed in the said terms of union.

SECTION 1. *Be it therefore enacted by the senate and house of representatives of the commonwealth of Pennsylvania in general assembly met, and it is hereby enacted by the authority of the same,* That, in pursuance of the second article of the said terms of union, the trustees of the university shall elect twelve persons from among themselves to be trustees of the said university after the union, and shall certify the names of the said twelve persons, so elected, to the governor of this commonwealth, on or before the first day of December next; and that the trustees of the said college, academy, and charitable school, shall elect twelve persons from among themselves, to be trustees of the said university after the union, and shall certify the names of the said twelve persons, so elected, to the governor of this commonwealth, on or before the first day of December next.

SECTION 2. *And be it further enacted by the authority aforesaid,* That from and after such certificates of the election being so made to the governor, as aforesaid, the said twenty-four persons so elected and cer-

tified, together with the governor for the time being, who shall always be president, and their successors, duly elected and appointed, as herein and by the said terms of union is directed, be, and they are hereby made and constituted a corporation and body politick, in law and in fact, to have continuance for ever by the aforesaid name, style, and title of The Trustees of the University of Pennsylvania, and that the said university shall at all times be stationed in the city of Philadelphia.

SECTION 3. *And be it further enacted by the authority aforesaid,* That the said trustees, and their successors, shall be able and capable in law to sue and be sued, by the name, style, and title aforesaid; and to have and to make one publick and common seal, and also one private seal to use in their affairs, and the same, or either of them, to break and alter at their pleasure; and to make rules and statutes not repugnant to the laws and constitution of this state, or of the United States of America, and to do everything needful and necessary to the establishment of the said university, and for their own good government, and the good government and education of the youth belonging to the same, and to constitute a faculty, or learned body, to consist of such head or heads, and such a number of professors in the arts and sciences, and in law, medicine, and divinity, as they shall judge necessary and proper, consistent with the aforesaid articles of union.

SECTION 4. *And be it further enacted by the authority aforesaid,* That, all and every the estates, real, personal, and mixed, moneys, effects, debts, claims, and demands, either in law or equity, which at present are vested in, or belong to each of the two boards of trustees of the said university, and of the said college, academy, and charitable school, who are hereby united and incorporated together, shall be, and they hereby are, transferred to and vested in the said trustees herein directed to be appointed and incorporated, and their successors, with full power to take, receive, hold, use, recover, and enjoy the same, according to the purpose, true intent, and meaning of this act, and that in like manner, all claims, rights, and demands, of any person or persons, bodies politick and corporate, against either of the said two boards, shall be, and remain valid and effectual against the trustees herein directed to be appointed and incorporated, and their successors, with power to demand, receive, and recover the same, as if they had been originally contracted by, or due, or recoverable from, the said trustees herein directed to be appointed and incorporated.

SECTION 5. *And be it further enacted by the authority aforesaid,* That, pursuant to the ninth article of the terms of union, the trustees shall annually lay a statement of the funds of the institution before the legislature of the commonwealth.

WILLIAM BINGHAM, *speaker of the house of representatives.*

RICHARD PETERS, *speaker of the senate.*

Approved, September the 30th, 1791.

THOMAS MIFFLIN, *governor of the commonwealth of Pennsylvania.*

In his plan for the education of youth in Pennsylvania Franklin outlines his ideas of university training, but all the parts of the Proposals are not wholly after Franklin's ideas. Franklin discovered that his idea of an English school education was not sufficient to win the financial support of all the subscribers. Many of them thought that provision should be made for the study of the ancient languages, and it was in order to gain the advantage of the support of these gentlemen that Franklin, in his spirit of compromise, inserted this clause:

When youth are told that the great men, whose lives and actions they read in history, spoke two of the best languages that ever were, the most expressive, copious, beautiful; and that the finest writings, the most correct compositions, the most perfect productions of human wit and wisdom, are in those languages, which have endured for ages, and will endure while there are men; that no translation can do them justice, or give the pleasure found in reading the originals; that those languages contain all science; that one of them is become almost universal, being the language of learned men in all countries; and that to understand them is a distinguishing ornament; they may be thereby made desirous of learning those languages and their industry sharpened in the acquisition of them. All intended for divinity should be taught Latin and Greek; for physic, the Latin, Greek, and French; for law, the Latin and French; for merchants, the French, German, and Spanish; and, though all should not be compelled to learn Latin, Greek, or the modern foreign languages, yet none that have an ardent to learn them should be refused; their English, arithmetic, and other studies absolutely necessary, being at the same time not neglected.

To strengthen his defense of English studies he wrote at this time his *Sketch of an English School*¹, which was printed in pamphlet form at his press but did not receive much attention. At the opening of the Academy Mr. Peters preached a sermon which was favorably received and printed in pamphlet form at Franklin's press; with characteristic sagacity Franklin sewed together his pamphlet, "*A Sketch of an English School*," with Mr. Peters's sermon and so got his notions before the public. Forty years after the foundation of the Academy, Franklin wrote his *Observations Relating to the Intentions of the Original Founders of the Academy in Philadelphia*, which are appended, and in which may be found an elaboration of his views with respect to education. He anticipated the revolt against the classics which has come in our day and has resolved Latin and Greek into the region of the dead. It is not inexpedient to say that Franklin's idea of studying such languages as would be of utility to those who pursued them is the correct principle in that department of education. In conformity with Franklin's notion we have the modern elective course, which is the practical result of Franklin's challenge of the advantage and utility of compelling all persons who pursue higher education to pursue the same subjects in the same way for different ends. It will be noticed that there is a touch of humorous satire when Franklin writes in a spirit of compromise that "no translations can do the finest writings in Latin and Greek justice," or give the "pleasure found in reading

¹ See page 36, *supra*.

the originals," and that these languages contain all science." It should not be forgotten, however, that Franklin owed his fame to the publication of his electrical investigations in the Latin tongue as well as in French, Spanish, and Italian.

When he spoke for the study of modern languages and the resolution of Latin and Greek to a secondary place in modern education, he was confronting the entire educational opinion of his times. The first struggle between the old system and Franklin's ideas of the new education occurred in Philadelphia in the very institution which Franklin had been instrumental in founding, and the history of that struggle is told by Franklin himself two years before his death.¹

It will be noted that in Franklin's plan of a school there was a provision for the education of poor children. He had clear ideas respecting the education of orphans, and the doctrines of equity regulated his ideas of charity. His Hints for Consideration Respecting the Orphan School-Houses in Philadelphia² formulate the large experience of his life in charitable matters. He laid down controlling principles for such an institution, as follows: (1) For the regular inspection of the institution; (2) That the labor of the orphans should not be made for the profit of the establishment; (3) That an account should be opened with each orphan, crediting him with his labor, and debiting him for the maintenance of his education; (4) At his discharge on coming of age, his accounts should be balanced, and he should be urged and in honor bound to pay any indebtedness, and he should receive any credit due him; (5) Upon leaving the institution, he should receive decent clothing, some money, and, if deserving, a certificate of good behavior; (6) The institution should aid him in entering upon a business or securing a position in life. Stephen Girard seems to have been influenced by these principles³ in founding Girard College.

At 53 Franklin had become, by the application of his own maxims, a man of independent fortune, and much respected by his neighbors, and of good reputation throughout the colonies. There had been a long and bitter dispute in Pennsylvania, respecting the rights of the Proprietaries and of the Assembly, chiefly turning upon the question whether the estates of the Penns should be taxed as other realty in the Province was taxed. Franklin had earnestly and efficiently advocated the rights of the Assembly, and it was as their representative that he went to England in 1757. His biographer remarks that—

It was Franklin who chiefly educated the colonies in the knowledge of their rights. He did this in many ways, by his *Junto*, by his newspaper, by his conversation, by the libraries founded through him, by the taste for science which he communicated, but especially by the ardor and ability with which he waged this long warfare against arrogant stupidity embodied in the degenerate offspring of William Penn.

¹ See *infra* the Observations, etc.

² See Girard College, p. 189.

³ See the Hints, p. 52, *supra*.

His experiments in electricity had already been recognized in England and in France, and he was welcomed by the literary and learned men of the time. Franklin's defects in education were never suspected by the academic world that sought his society.¹ He was a genius in his capacity for reading, a good listener, and though easy in his manners, gay and witty, he never sought to indulge the company with "flashes of silence." No sooner had he settled in London than his instinct to effect improvements showed itself, and smoky street lamps and filthy streets were the object of his attention. It is not my purpose to write a biography of Franklin, nor even to catalogue his experiments, but by reference to some of them to suggest the utilitarian character of the man and the origin of his educational ideas.

The inattention of the ministry afforded him an opportunity for travel, and in 1757 he visited Scotland, where the University of St. Andrews conferred upon him the title of Doctor, by which he has ever since been known. Here he met Hume, Robertson, and Lord Kames, and it is thought by one of his biographers that Franklin's remark to Dr. Robertson "suggested the well-known Macaulayan image of the New Zealander sitting upon the arch of London Bridge contemplating the ruin of St. Paul's."²

But Franklin was engaged in a larger service for his countrymen than the favorable acquaintance of eminent men; he was almost continually writing and printing pamphlets on the American Colonies for the enlightenment of the English public. The dark and dreary waste of English opinion on the Americans at that time seemed impervious to the beams of Franklin's genius, and he succeeded but feebly at first in piercing that darkness, but the rays of his intelligence at last fell upon fertile soil and there sprang up a liberal party in the kingdom, which, at last, laid hold of the Government and compelled the acknowledgment of American independence.

The usefulness of Franklin at this time may be understood by any who choose to read his numerous pamphlets and his letters. Franklin's farsightedness is illustrated in one of his cherished opinions expressed to Lord Kames, "that the foundations of the future grandeur and stability of the British Empire lie in America." He opposed the restoration of Canada to the French, saying:

If we keep it, all the country from the St. Lawrence to the Mississippi will, in another century, be filled with British people; Britain itself will become vastly more populous, by the immense increase of its commerce, the Atlantic Sea will be covered with your trading ships, and your naval power, thus continually increasing, will extend your influence round the whole globe and awe the world.

He ever believed and labored to effect that Canada and the Thirteen Colonies should comprise a political unit, and it was only by a blunder

¹ Instance the honorary degrees he received from William and Mary College, St. Andrew's, Oxford, and Cambridge.

² Parton.

of his colleague in Paris, when the final treaty of peace was made in 1783, that England failed to include Canada with the United States.¹

Franklin not only educated the colonies, but he educated England, and perhaps the most telling lesson that he imparted to the British public was in his examination before the House of Commons in 1765. For the first time England received true information of the state of the colonies, and the information was conveyed to the masters of England themselves. The examination of Franklin before the House of Commons was by no means an accidental or impromptu affair, but nearly all the questions and their answers were arranged beforehand by Franklin and his friends among the liberal members of Parliament. This attorney-like proceeding does not affect the value of the evidence, but by timely shaping the examination it concentrated, in the brief period when Franklin was before the House, all possible information that could be elicited from the best-informed man in the colonies. In this examination Franklin was at home, and he himself played the first part in the most Socratic dialogue in parliamentary history. The whole examination was after Franklin's own heart, and singularly in keeping with his own self-education. Experience and observation equipped him for the task, and his triumph is the proof of the excellence of his method.²

Franklin had a unique method of educating the British public, and he had learned it in his apprentice days in Boston and during the long struggle between the assembly and the proprietaries in Pennsylvania. The method is characteristic of all his political writings; it was by briefly setting the whole question in dispute in a humorous light, by which the reader might see his way to the true conclusion, that is, the conclusion which Franklin wished drawn. This method of political enlightenment is unquestionably good in journalism and in pamphleteering, and has its uses in book-making and public speaking; but this very tendency in Franklin, it is said, excluded him from being asked by his contemporaries to write any of the great state papers of colonial times. It would hardly do to put a joke into the Declaration of Independence. Franklin's English pamphlets are exquisite political hits, of which two are particularly famous: "Rules for reducing a Great Empire to a Small One, Presented to a Late Minister" (Lord Hillsboro, when he entered upon his ministry), and "An Edict of the King of Prussia." These two articles show one phase of Franklin at great advantage. He was the first American humorist.

Franklin was aware that public opinion is won and controlled by the most delicate and yet by the broadest manipulation, and that if he could win the favorable opinion of the British public to American affairs, he would control the votes of the House of Commons. By this procedure he showed the practicality of his mind; he appealed to the power in England which makes and unmakes ministries.

¹ See p. 161.

² See the examination in Bigelow, Vol. 3, p. 407.

In appealing to this power he did not proceed blindly by addressing humorous newspaper articles to the general reader; he wrote these masterly articles for the education of the public; and he did more, he became the companion of the first literary and scientific men of England and won many of them to the support of his liberal ideas, not by formal discussions of the rights of the colonies, but by exemplifying in his own character and appointments the nature of American institutions which could produce such a man as he. It is not difficult for us to realize how Franklin thus became the typical American and won respect for America by winning respect for himself. Franklin's chief service to America was in the experimental proof that the human race does not degenerate in this country, but that it could equal, if not surpass, the old country in its productions.¹

We must not forget that Franklin appeared in the drawing rooms of London when it was a common doubt among English ladies whether Americans were white or black, whether they dressed in skins or wool, whether they spoke English or Indian, whether they lived in houses or wigwams, and whether Philadelphia did not comprise Pennsylvania.

Among the friends of Franklin in England were Adam Smith, who, at the time Franklin met him, was writing his classical work, "The Nature and Cause of the Wealth of Nations," and David Hume, the well-known author of a history of England and essays on politics and philosophy. In Watson's *Annals of Philadelphia*² it is said that Dr. Franklin once told Dr. Logan that Adam Smith when writing his *Wealth of Nations* was in the habit of bringing chapter after chapter as he composed it to Franklin, Dr. Price, and others of the literati; then patiently hear their observations and profit by their discussions and criticisms, sometimes re-writing whole chapters, after such conference, and even reversing some of his propositions. Hume is quoted as writing to Adam Smith in 1776, saying, "Your work is probably much improved by your last abode in London." Parton has pointed out that Franklin's papers at this period "contain sets of problems and queries as though agitated at some meeting of philosophers for particular consideration at home." All students of political economy have long known that Smith's "Wealth of Nations" is the first book that illustrates its propositions by allusions to the American colonies. Smith's ideas were new and he was working out a new system of economics; in seeking a field for the application of his ideas it was natural that he should refer to America, a new country, as the region where his ideas might have a practical test.

It is known that the *Wealth of Nations* was favorably received

¹The incident of the six tall Americans and the six short Frenchmen together at dinner is in point.

²See specially, Franklin's idea of Labor as a measure of wealth, expanded by Smith in Book I; and consult index to "The Wealth of Nations" title "America" for illustrations of Franklin's influence on Smith.

and had great influence in centering the attention of Europe upon America. It is also known that the statesmen who coöperated in the formation of the United States, Franklin, Washington, Jefferson, Madison, Hamilton, Jay, Morris, and others were brought up in the new school of Adam Smith. The *Wealth of Nations* had a most important influence in the organization of government in America (1776 to 1789); the doctrines of Smith are traceable in the debates of the Constitutional Convention of 1787 and references to the influence of the *Wealth of Nations* are scattered through the works of the statesmen of the period.¹

It is not too much to say that Franklin's influence on economic education is illustrative of his whole educational doctrine. He gave to Adam Smith apt illustrations of the utility of the ideas of the *Wealth of Nations*. So great had been the changes in America due to its development that the illustrations in the *Wealth of Nations*² which bear particularly upon the American colonies are now hardly estimated at their original value; it should be remembered that this book, which Buckle calls "the most important book ever written," and "the most valuable contribution ever made by a single man toward establishing the principles on which governments should be based," was the first work by a European scholar which made use of the American colonies as apt illustrations of its doctrines and pointed to those colonies as the country where the new political economy should develop in all its strength. Had Franklin done nothing else in the world than contribute these illustrations to Adam Smith's book, he would have had a high place among the great educators of mankind. As the first book on the economic basis of modern government in America, the *Wealth of Nations* should be classed with the *Federalist*, De Tocqueville's *Democracy in America*, and Bryce's *American Commonwealth*.

Franklin influenced English opinion by his association with the leading men of the times. A suggestion only can be made of the educational influence of such association by mentioning some of Franklin's English friends. Particular examination of the diaries and journals of the public men of the time would illustrate the extent of Franklin's influence; he was intimate with Burke, Hume, Lord Kames, Sir John Pringle, Dr. Fothergill, Dr. Cannon, Dr. Richard Price, Dr. Priestley, and the Bishop of St. Asaph's; Lord Shelbourne, the Marquis of Rockingham, Lord de Lespencer, Lord Bathurst, Lord North, the astronomer Maskyline, and Lord Morton, were among his acquaintances. But

¹Mr. Joseph Wharton, founder of the Wharton School of Finance and Economy in the University of Pennsylvania, has in his possession Washington's copy of Adam Smith's *Wealth of Nations*, the edition in four volumes. Some errors in the proof are corrected in Washington's hand and there is other evidence that he had read the work carefully.

²Prof. John Bach McMaster tells me that references to the *Wealth of Nations* are numerous in the newspapers and pamphlets of this period, 1777-1790. [Editor.]

it was with Dr. Priestley, Dr. Shipley, the bishop of St. Asaph, and David Hume, that Franklin was most intimate.

A conversation between Franklin and Priestley is recorded when one evening, at the Royal Society, the question arose as to what was the most desirable invention that remained to be made. To which Franklin replied, "the spinning of two threads at the same time." We are told that before Franklin left London, Hargraves and Arkwright had perfected machinery by which forty threads were spun by the same motion.¹

Franklin's reply is illustrative of his utilitarianism; he lived in the days of leather breeches and vests, and even of greatcoats, when the poor were not clad in comfort. So expensive was woolen cloth that a family was obliged to make full use of it when once in their possession, and, as is attested by the recorded wills of thousands of Americans of that time, the personal apparel of the parents was transmitted to the individual members of the family.²

Franklin's services to his country by educating England to an understanding of the conditions of the American colonies were temporarily suspended by his return to America in 1775, when it seemed to many that he had failed in securing the object of his mission. Subsequent events, however, proved that his humorous contributions to the newspapers, in which he discussed in a broad way the American situation, had educated the public mind and his intimacy with men and women of eminence and learning had laid the foundations of a political party.

Franklin's writings seem the spontaneous production of an easy mind; on the contrary, they are the result of painstaking effort, of repeated interlineation, revision, and rewriting, and his best pieces were rewritten seven or eight times before he published them. Among the Franklin papers in Washington are many which are the successive copies of such pieces. It is surprising at first thought that a man so busy as Franklin could find time and would have the patience to give such detailed attention to the pieces which he wrote for the pleasure of his friends, but Franklin loved details and excelled in the exquisite practice of literary refinement until his anecdote or his scientific paper, freed from all useless words, illustrated the standard of the simple and concise style which he so frequently pronounced most perfect. His frequent defense of an English education was doubtless suggested by his own patience and experience in writing these perfect productions in his own tongue. He could not see any advantage in traveling along an Italian Row, a Spanish Row, and a French Row in the midst of this

¹ "There are spinning mules in operation now in the city of Philadelphia which will spin one thousand threads at a time." [Charles Heber Clarke to Editor.]

² See Weedon's "Social and Economic History of New England," remarks on "cloth" and "textile fabrics."

literary Vanity Fair when the English way was so direct, so convenient, and so plain.¹

Franklin never outgrew the lessons of his own efforts in self-education. Perhaps no better illustration of the effects of education upon the mind when men are called to decide on important matters is found than in the curious judgment of the committee appointed by Congress July 4, 1776, consisting of Franklin, Jefferson, and John Adams, to prepare a device for a seal for the General Government.² The various devices proposed by the members of the committee suggest the education which each had received in his boyhood. We learn from Adams that Dr. Franklin proposed as a device, "Moses lifting up his wand and dividing the Red Sea, and Pharaoh in his chariot overwhelmed with the waters." The motto, "Rebellion to Tyrants is obedience to God." Probably Franklin's memory of his home training in Milk Street, where his childish ideas were colored by incidents in Jewish history, may explain the origin of this device.

Jefferson proposed as a device, "The children of Israel in the wilderness; led by a cloud by day and a pillar of fire by night; and on the other side, Hengist and Horsa, the Saxon chiefs, from whom we claim the honor of being descended, and whose political principles and form of Government we have assumed." Evidently Jefferson's youthful training was not wholly biblical and the curious mixture of Hebraism and British mythology was characteristic of the constructive Jeffersonian politics.

Adams forgot his Old Testament training and thought the choice should be of Hercules, "as engraved by Gribelin in some editions of Lord Shaftesbury's works. The hero resting on his club; Virtue pointing to her rugged mountain on one hand and persuading him to ascend; Sloth, glancing at her flowery paths of pleasure, wantonly reclining on the ground, displaying the charms both of her eloquence and person, to seduce him into vice." John Adams had read Lord Shaftesbury at the turning point of his youthful education, and characteristically leaving the plain illustrations of Hebrew history, he preferred the abstractions of the founder of North Carolina.

It might be thought that in suggesting a seal for the United States Franklin would have proposed a figure of a saw, or a hammer, or a printing press. We are told that after nearly six weeks' deliberation Moses and Pharaoh and Hengist and Horsa and Lord Shaftesbury were left behind, and the committee proposed an emblematic seal suggestive of the composite character of American institutions: "A rose for England, a thistle for Scotland, a harp for Ireland, a fleur-de-lis for France, a black eagle for Germany, a lion for the Low Countries." The United

¹ See his *Observations Relative to the Intentions of the Original Founders of the Academy in Philadelphia*, in which he vigorously defends an English education.

² The Seal of the United States, how it was developed and adopted; Washington, Department of State, 1892.

States was to appear upon the border by its initials, and the goddess of liberty in armor, with a spear, cap, and shield, was to support the emblazonment; Justice, with her naked sword, was to guard all. All was to be under "the eye of Providence in a radiant triangle, whose glory extends over the shield and beyond the figures. Motto: 'E Pluribus Unum.'" And round the whole the legend "Seal of the United States of America, MDCCLXXVI." Franklin seems to have won the committee to his idea, and on the other side of the seal Pharaoh was to sit in his chariot, with a crown on his head and a sword in his hand, passing through the divided waters of the Red Sea in pursuit of the fleeing Israelites. But even here Franklin illustrated his diplomacy by compromising with Jefferson in the device of a pillar of fire in a cloud, expressive of the Divine presence which beamed on Moses, who stood on the shore extending his hand over the waters and causing the fearful overflow. Franklin's motto was retained. Happily for the device on our national seal, Dr. Franklin at this time was sent to France and other committees, following out the suggestions of Franklin's famous story of the latter, suppressed all of the original design except the motto and the eye of Providence.

It was on this voyage to France, rough and painful, that Franklin, though suffering the miseries of unwholesome accommodations and almost continuous sea-sickness, "contrived every day to take the temperature of the ocean, in order to verify anew his discovery of the warmth of the Gulf Stream." He could no more resist the opportunity of making experiments than he could resist being cheerful. An interesting collection of data might be made from his writings illustrative of his notions on experimentation. It may be said that scarcely a page of his collected works fails to contain some suggestion of experiment to determine the usefulness of a proposition. Franklin's chief influence in American education is due to his starting this enginery of experiment, and in the wake of his useful life there followed a noble number of distinguished men who have contributed to the welfare of mankind by their experiments in connection with institutions founded by Franklin, or under the impulse of his ideas, such as the University of Pennsylvania, the American Philosophical Society, and the Franklin Institute.

In France Franklin continued to educate Europe in American affairs, and not only in American affairs but in the principles of representative government. He put into the hands of Dr. Dubourg¹ a volume of the first constitutions of the American States, and superintended their translation into French. It is of these constitutions that Thomas Paine said "they were to liberty what grammar is to language; they define its parts of speech and practically construct them into syntax." Their publication was resisted for a long time by the French Government, but pub-

¹It was M. Dubourg who had been chiefly instrumental in publishing many of Franklin's letters on electricity.

lie opinion at last forced their publication. The effect of bringing American ideas before the people of France is touched on in Franklin's letter to Dr. Samuel Cooper in May, 1777:

All Europe is on our side of the question as far as applause and good wishes can carry them. Those who live under arbitrary power do nevertheless approve of liberty, and wish for it; they almost despair of recovering it in Europe; they read the translations of our separate colony (?) constitutions with rapture; and there are such numbers of them everywhere who talk of removing to America, with their families and fortunes, as soon as peace and our independence shall be established, that it is generally believed we shall have a prodigious addition of strength, wealth, and arts, from the emigrations of Europe; and it is thought that, to lessen or prevent such emigrations, the tyrannies established there must relax, and allow more liberty to their people. Hence it is a common observation here, that our cause is the cause of all mankind, and that we are fighting for their liberty in defending our own.

This passage illustrates much of Franklin's economy; he would appeal to the public, he would induce immigration at a time when immigration was almost unknown, when the difficulties in the way of the German or French or Dutch family who would find a home in America were sufficient to keep them in their own country. Franklin would proceed on universal principles and make his cause "the cause of all mankind." He touched the French mind at the point when the slightest friction kindled a flame, and the effect of the publication of these American Constitutions in hastening and shaping the French Revolution is beyond computation. It is known that Turgot and Neckar opposed French aid to the American Colonies on the ground of the tremendous cost to France, not merely in depleting the treasury, but in undermining the monarchy.

It is Franklin's work in France that gave expression there to the philosophy of David Hume and the economy of Adam Smith. Doubtless these three men, Franklin, Hume, and Adam Smith, were the triumvirate of the eighteenth century. The philosophy of Hume, the economy of Adam Smith, and the practicality of Franklin represent the three controlling ideas in that creative period; to these three influences, cooperating at a critical time in the development of constitutional government, the world owes the development of modern science, of modern industry, and the triumph of representative government. The meeting of three such forces in the world by the communion of Franklin and Hume and Smith in their conversations in Edinburgh, suggests a subject for philosophical examination.

In Franklin's "Proposals Relating to the Education of Youth in Pennsylvania" he told the reader that—

The idea of what is true merit should also be often presented to youth, explained, and impressed on their minds as consisting in the inclination joined with the ability to serve mankind, one's country, friends, and family, which ability is, with the blessing of God, to be acquired or greatly increased by true learning, and should indeed be the great aim and end of all learning.

He practiced this precept. The translations of the American Constitutions served "the cause of all mankind," and everybody knows how Franklin was ever mindful of his friends and his family whenever he could serve them, either in private or public life; any of his relatives who were capable of filling office usually filled one. His life is full of applications of his system of prizes and rewards laid down in his scheme for an English school. If he would give gilt books to children, he would give to those who served their country the reward of public recognition. Thomas Wren was a dissenting clergyman at Portsmouth, England, who sympathizing with the American cause and pitying the distress of the American prisoners, devoted much of his time to the relief of the Americans in Forton jail. He gave of his own small fortune, he obtained the assistance of his friends, he bought clothing and medicine and food, and in every way in his power contributed to the comfort of those unhappy men. Dr. Franklin was in correspondence with him throughout the war and as a slight proof of his sense of the indebtedness of the public to Wren, Franklin was instrumental in securing him a vote of thanks from Congress in 1783 and the degree of Doctor of Divinity from Princeton College.

Illustrations abound in Franklin's life of his constant practice of the principles laid down in his scheme for the education of youth. Utilitarianism has its machinery of compensation and Franklin ever worked this machinery with success. His scheme of education made no provision for the useless man, and on several occasions he makes an ancient college, as in the case of Princeton, the means of rewarding a useful act. He seems to have discovered a usefulness in the granting of college degrees which at that time was so shamefully abused.

It is in 1778, while in his seventy-second year, when Franklin and John Adams are associated in diplomatic work in Paris, that the difference in their educational equipment is so apparent. Adams was a lawyer, regular in all his habits, clear in interpreting his own course in affairs, and one of the great company of human beings who worship order. The first point of difference between Franklin and Adams was relating to order. Of this Franklin had little and Adams had much. Everybody recalls Franklin's exquisite confession of his own failure to acquire orderly habits in his autobiography. It occurs in his account of his effort to apply his Art of Virtue. One of the virtues at which he aimed was order.

I made so little progress in amendment [he says] and had such frequent relapses that I was almost ready to give up the attempt, and content myself with a faulty character in that respect, like the man, who, in buying an ax of a smith, my neighbor, desired to have the whole of the surface as bright as the edge. The smith consented to grind it bright for him if he would turn the wheel; he turned while the smith pressed the broad face of the ax hard and heavily on the stone which made the turning of it very fatiguing. The man came every now and then from the wheel to see how the work went on and at length would take his ax as it was, without farther grinding. "No," said the smith, "turn on, turn on; we shall have it bright by and

by; as yet it is only speckled." "Yes," says the man, "but I think I like a speckled ax best." And I believe this may have been the case with many who, having for want of some such means as I employed, found the difficulty of obtaining good and breaking bad habits in other points of vice and virtue, have given up the struggle, and concluded "that a speckled ax was best;" for something, that pretended to be reason, was every now and then suggesting to me that such extreme nicety as I exacted of myself might be a kind of foppery in morals, which, if it were known, would make me ridiculous; that a perfect character might be attended with the inconvenience of being envied and hated, and that a benevolent man should allow a few faults in himself to keep his friends in countenance. In truth I found myself incorrigible with respect to order; and now I am grown older and my memory bad, I feel very sensibly the want of it.

Had Franklin had a keener appetite for order he might possibly have collected his various writings, or he might have completed his autobiography, or he might have arranged more perfectly the details of many of his experiments, or he might have set forth somewhere the means by which he arrived at so many of his opinions. Though Franklin is always taking us into his confidence, there are many interesting matters about him on which we would like further information. Franklin, like Daniel Webster, was capable of taking his ease. His large soul had need to be stirred now and then by lesser men. He would never have undertaken his autobiography, that priceless fragment of literature, had it not been pressed upon him by his friends.

That Franklin was estimated a hundred years ago very much as he is estimated to-day is evident from a letter to him by Benjamin Vaughan, dated Paris, January 31, 1783, in which Franklin is urged to continue his autobiography and to write his "Art of Virtue."

Your history is so remarkable that if you do not give it somebody else will certainly give it, and perhaps so as nearly to do as much harm as your own management of the thing might do good.

It will moreover present a table of internal circumstances of your country which will very much tend to invite to it settlers of virtuous and manly minds. And considering the eagerness with which such information is sought by them, and the extent of your reputation, I do not know of a more efficacious advertisement than your biography would give.

All that has happened to you is also connected with the detail of the manner and situation of a rising people; and in this respect I do not think that the writings of Cæsar and Tacitus can be more interesting to a judge of human nature and society.

But these, sir, are small reasons, in my opinion, compared with the chance which your life will give for the forming of future great men, and in conjunction with your "Art of Virtue" (which you design to publish) of improving the features of private character, and consequently of aiding all happiness, both public and domestic.

The two works I allude to, sir, will in particular give a noble rule and example of self-education. School and other education constantly proceed upon false principles, and show a clumsy apparatus pointed at a false mark; but your apparatus is simple and the mark a true one; and while parents and young persons are left destitute of other just means of estimating and becoming prepared for a reasonable course in life, your discovery that the thing is in many a man's private power will be invaluable.

Influence upon the private character late in life is not only an influence late in life, but a weak influence. It is in youth that we plant our chief habits and prejudices; it is in youth that we take our parties as to profession, pursuits, and matri-

mony. In youth therefore the turn is given; in youth the education even of the next generation is given; in youth the private and public character is determined, and the term of life extending out from youth to age, life ought to begin well from youth, and more especially before we take our party as to our principal objects.

But your biography will not merely teach self-education, but the education of a wise man; and the wisest man will receive lights and improve his progress by seeing detailed the conduct of another wise man. And why are weaker men to be deprived of such helps when we see our race has been blundering on in the dark, almost without a guide in this particular, from the farthest trace of time. Show, then, sir, how much is to be done, both to the sons and fathers, and invite all wise men to become like yourself, and other men to become wise.

When we see how cruel statesmen and warriors can be to the human race, how absurd distinguished men can be to their acquaintances, it will be instructive to observe the instances multiply of pacific, acquiescing manners; and to find how compatible it is to be great and domestic, enviable and yet good-humored. The little private incidents which you will also have to relate will have considerable use, as we want above all things rules of prudence in ordinary affairs; and it will be curious to see how you have acted in these. It will be so far a sort of a key to life, and explain many things that all men ought to have once explained to them, to give them a chance of becoming wise by foresight.

The nearest thing to having experience of one's own is to have other people's affairs brought before us in a shape that is interesting. This is sure to happen from your pen. Your affairs and management will have an air of simplicity or importance that will not fail to strike; and I am convinced you have conducted them with as much originality as if you had been conducting decisions in politics or philosophy; and what more worthy of experiments and system (its importance and its errors considered) than human life.

Some men have been virtuous blindly, others have speculated fantastically, and others have been shrewd to bad purposes; but you, sir, I am sure, will give under your hand nothing but what is at the same moment wise, practical, and good.

Your account of yourself, for I suppose the parallel I am drawing for Dr. Franklin will hold not only in point of character, but of private history, will show that you are ashamed of no origin, a thing the more important as you prove how little necessary all origin is to happiness, virtue, or greatness.

As no end likewise happens without a means, so we shall find, sir, that even you yourself framed a plan by which you became considerable; but at the same time we may see that though the event is flattering, the means are as simple as wisdom could make them; that is, depending upon nature, virtue, thought, and habit.

Another thing demonstrated will be the propriety of every man's waiting for his time for appearing upon the stage of the world. Our sensations being very much fixed to the moment, we are apt to forget that more moments are to follow the first, and consequently that man should arrange his conduct so as to suit the whole of a life. Your attribution appears to have been applied to your life, and the passing moments of it have been enlivened with content and enjoyment, instead of being tormented with foolish impatience or regrets. Such a conduct is easy for those who make virtue and themselves their standard, and who try to keep themselves in countenance by examples of other truly great men, of whom patience is so often the characteristic.

Your Quaker correspondent * * * praised your frugality, diligence, and temperance, which he considered as a pattern for all youth; but it is singular that he should have forgotten your modesty and your disinterestedness, without which you never could have waited for your advancement or found your situation in the meantime comfortable, which is a strong lesson to show the poverty of glory and the importance of regulating our minds. If this correspondent had known the nature of your reputation as well as I do, he would have said your former writings and

measures would secure attention to your biography and Art of Virtue, and your biography and Art of Virtue in return would secure attention to them. This is an advantage attendant upon a various character and which brings all that belongs to it into greater play; and it is the more useful, as perhaps more persons are at a loss for the means of improving their minds and characters than they are for the time or the inclination to do it. * * * If it encourages more writings of the same kind with your own, and induces more men to spend lives fit to be written, it will be worth all Plutarch's Lives put together. * * * Considering your great age, the caution of your character, and peculiar style of thinking, it is not likely that anyone besides yourself can be sufficiently master of the facts of your life or the intentions of your mind.

Besides all this, the immense revolution of the present period will necessarily turn our attention toward the author of it; and when virtuous principles have been pretended in it, it will be highly important to show that such have really influenced; and, as your own character will be the principal one to see a scrutiny, it is proper even for its effects upon your vast and rising country, as well as upon England and upon Europe, that it should stand respectable and eternal.

For the furtherance of human happiness I have always maintained that it is necessary to prove that a man is not even at present a vicious and detestable animal; and, still more, to prove that good management may greatly amend him; and it is for much the same reason that I am anxious to see the opinion established that there are fair characters existing among the individuals of the race, for the moment that all men, without exception, shall be conceived abandoned, good people will cease efforts deemed to be hopeless, and perhaps think of taking their share in the scramble of life, or at least of making it comfortable principally for themselves.

Extend your views even further; do not stop at those who speak the English tongue, but after having settled so many points in nature and politics, think of bettering the whole race of men.

This appeal was turning the tables on Franklin, and was happily effectual in causing him to resume his autobiography at Passy, near Paris, in the following year. This letter is almost prophetic of the place that Franklin was to hold in American life. Who can estimate the number of readers of the autobiography, and who can tell how many lives have been made useful by that work? Fifty years ago the means for securing an education in America were so imperfect that the autobiography became the great text-book for active minds among the young throughout the country, and there are few eminent men or women in America to-day, 60 years of age and native born, who will not place Franklin's Autobiography, not only among the few books that helped them, but as the first book that they read which opened up a possible career in life by self education, and which did for their generation even more than Sartor Resartus, or Emerson's Essays, forty years ago. Franklin's Autobiography was a book-making book, because his life was a book-making life.

The old Congress of the Confederation seems to have realized the value of education in politics, for in 1780 it requested Franklin to make a school book of the record of British atrocities in the American war. Franklin describes this commission to his English friend Hartley. The book was to have "thirty-five prints, designed here by good artists, and engraved, each expressing one or more of the different horrid facts to be inserted in the book, in order to impress the minds of children

and posterity with a deep sense of your bloody and insatiable malice and wickedness." But Franklin was not a Eugene Sue; he resolved not to proceed in the work, hoping that a reconciliation might take place, but added "every fresh instance of your devilism weakens that resolution and makes me abominate the thought of a reunion with such a people." Perhaps Benjamin Vaughan was wiser than Congress when he intimated that Franklin's Autobiography would make a great American school book. The influence of Franklin on American education has been even greater through his Autobiography than through the institutions which he founded or which were founded by his followers.

Franklin was a prince of democrats. The great feature of his whole public policy is well said by Parton to be "to enlighten public opinion and to bring enlightened public opinion to bear upon the councils of public men." In this lofty effort he was surpassed by none of his contemporaries and has been equaled by few of his successors.

In 1784 a town of Norfolk County, Massachusetts, in its sixth year, took upon itself the name of Franklin, and, sending notice of the honor, informed Franklin that they would build a suitable tower to their church if he would present them with a bell. His famous reply asking them to accept a gift of books instead of a bell, "sense being preferable to sound," led to the founding of a public library in the town whose first books were selected by Dr. Price, at Franklin's request, limiting the choice to "such as are most proper to inculcate principles of sound religion and just government." Franklin was too busy, probably, to make out the list himself, and recommended, at the instance of his sister, Stennet's Discourse on Personal Religion. The books selected by Dr. Price were presented to the town; they suggest the ruling ideas of the period and most of them have been put upon the high shelves in the modern library.¹

¹They were as follows: Clarke's Works; Hoadley's Works; Barrow's Works; Ridgeley's Works; Locke's Works; Sidney's Works; Montesquieu's Spirit of Laws; Blackstone's Commentaries; Watson's Tracts; Newton on the Prophecies; Law on Religion; Priestley's Institutes; Priestley's Corruptions; Price and Priestley; Lyndsey's Apology; Lyndsey's Sequel; Abernethy's Sermons; Duchal's Sermons; Price's Morals; Price on Providence; Price on Liberty; Price's Sermons; Price on the Christian Scheme; Needham's Free-State; West and Lyttleton on the Resurrection; Stennet's Sermons; Addison's Evidences; Gordon's Tacitus; Backus's History; Lardner on the Logas; Watts's Orthodoxy and Charity; Brainerd's Life; Bellamy's True Religion; Doddridge's Life; Bellamy's Permission of Sin; Fordyce's Sermons; Hemmenway against Hopkins; Hopkins on Holiness; Life of Cromwell; Fulfilling of the Scriptures; Watts on the Passions; Watts's Logic; Edwards on Religion; Dickinson on the Five Points; Christian History; Prideaux's Connections; Cooper on Predestination; Cambridge Platform; Stoddard's Safety of Appearing; Burkett on Personal Reformation; Barnard's Sermons; Shepard's Sound Believer; History of the Rebellion; Janeway's Life; Hopkin's System; American Preacher; Emmons's Sermons; Thomas's Laws of Massachusetts; American Constitutions; Young's Night Thoughts; Pilgrim's Progress; Ames's Orations; Spectators; Life of Baron Trenk; Cheap Repository; Moral Repository; Fitch's Poems; Erskine's Sermons.

It was about this time that Franklin's name begins to appear upon the map of the United States, in the State of Frankland (Tennessee), in counties and in towns.¹

The last official act done by Franklin in Europe was the affixing of his signature to the treaty with Prussia, which contained what was considered at that time a novel proposition, but one to which Franklin was devoted, and which he was instrumental in introducing, laying it down that free ships make free goods, and securing private property from seizure and destruction in time of war. Washington spoke of this treaty as marking a new era in negotiation, but its liberal principles have not yet won full recognition in diplomacy.²

Franklin's return voyage in 1785, continuing seven weeks, gave him another opportunity for experiment, and it was at this time that he wrote his elaborate paper, in the form of a letter to David LeRoy, on the construction, sailing, loading, provisioning, and saving of ships, and the winds, currents, and temperature of the sea, with twenty-seven illustrations and sea charts, and six tables of thermometrical observations. • It was the eighth time that Franklin had crossed the Atlantic, and was productive of one of his most useful suggestions, the construction of water-tight compartments in ships, which has come into common use since his day. Franklin took the idea from the Chinese, with whose habits his wide reading had acquainted him.³

On his return to Philadelphia, after his long absence in France, he received congratulatory addresses from the assembly of Pennsylvania and from the provost, vice-provost, and professors of the University of Pennsylvania, which he had been instrumental in founding. The address of the provost and his associates is as follows:

HONORED SIR: The provost, vice-provost, and professors of the University of Pennsylvania beg leave to congratulate you on your safe arrival in your native country after having accomplished the duties of your exalted character with dignity and success.

While we participate in the general happiness of America, to the establishment of which your political abilities and patriotic exertions have so signally contributed, we feel a particular pleasure in paying our acknowledgments to the gentleman who first projected the liberal plan of the institution over which we have the honor to preside.

Not contented with enriching the world with the most important discoveries in natural philosophy, your benevolence and liberality of sentiment early engaged you to make provision for exciting a spirit of inquiry into the secret operations of nature, for exalting and refining the genius of America by the propagation of useful learning, and for qualifying many of her sons to make that illustrious figure which has commanded the esteem and admiration of the most polished nations of Europe.

Among the many benevolent projections which have laid so ample a foundation for the esteem and gratitude of your native country permit this seminary to reckon

¹ See p. 163.

² See John Adams's Criticism.

³ The paper was afterwards read at a meeting of the American Philosophical Society, December 2, 1785, and is found in volume IX of Bigelow's edition of Franklin's Works.

her first establishment, upon the solid principles of equal liberty, as one of the most considerable and important. And now, when restored, through the influence of our happy Constitution, to her original broad and catholic bottom; when enriched by the protection of generous donations of a public-spirited and patriotic assembly; and when flourishing under the countenance of the best friends of religion, learning, and liberty in the State, she can not but promise herself the continued patronage of the evening of that life which divine Providence has so eminently distinguished.

May the same indulgent Providence yet continue your protracted life, enriched and crowned with the best of blessings, to nurse and cherish this favorite child of your youth, that the future sons of science in this western world may have additional reason to remember the name of Franklin with gratitude and pleasure.

Signed, in the name and by order of the faculty, by—

JOHN EWING, *Provost.*

PHILADELPHIA, *September 16, 1785.*

DR. FRANKLIN'S ANSWER.

I am greatly obliged, gentlemen, by your kind congratulations on my safe arrival. It gives me extreme pleasure to find that seminaries of learning are increasing in America, and particularly that the University over which you preside continues to flourish. My best wishes will always attend it.

The instruction of youth is one of those employments which, to the public, are most useful. It ought, therefore, to be esteemed among the most honorable. Its successful exercise does not, however, always meet with the reward it merits except in the satisfaction of having contributed to the forming of virtuous and able men for the service of their country.

The address is sufficient evidence of the recognition of Franklin's services to education at the time and of the friendly relations which existed between him and the University; he was still one of its trustees. The minutes of the meetings of the board of trustees show that he had always attended them when he was present in the country. The proof of his presence is his signature, as it was customary for each member of the board present at a meeting to attest his presence by signing the record.

On his return to Philadelphia he was almost unanimously elected president of the Commonwealth and was inducted into office with much ceremony, the chief officers of the State and city government, the provost and faculty of the University of Pennsylvania, the militia and the citizens joining in the exercises. Like Washington, Franklin accepted the cares of the presidency but refused the salary, acting in conformity with his well-known principles that in a representative democracy the most valuable offices should have no salaries. The money he would have received as the emolument of his office as president of the Commonwealth of Pennsylvania he gave towards the founding of colleges and other useful institutions in the State.

By successive elections he was three times inaugurated president of the Commonwealth. His countrymen had come to recognize Franklin as the natural patron of every enterprise of a literary or philanthropic character, and it was during his presidency, in 1786, that a general plan of a college in the borough of Lancaster, Pa., was presented to the

general assembly and approved. Thus, out of respect to the character "of His Excellency, the President of the State," the institution was called Franklin College.

On the 6th of June, 1787, the college was formally opened. It had been founded in consideration of the wants of the German population in Pennsylvania, and was under the control of the Lutheran church.¹ Of the exercises² at the opening of the college the Rev. J. H. Dubbs, D. D., has given an interesting account in his article on the founding of Franklin College, in the Reform Quarterly Review for October, 1887.³

The question whether Benjamin Franklin was personally present at this festival has recently received some attention. That he was in Lancaster at some time in the year 1787, on an occasion which has been denominated "the laying of the corner-stone," appears to be a fact which is beyond reasonable question. A French writer, Hector St. John Crèvecoeur, has preserved a record of the event in his book of travels, in which he says, as quoted by Duyckinck's *Cyclopedia of American Literature*: "In the year 1787 I accompanied the venerable Franklin, at that time governor of Pennsylvania, on a journey to Lancaster, where he had been invited to lay the corner-stone of a college which he had founded there for the Germans. In the evening of the day of the ceremony we were talking of the different nations which inhabit the continent." The writer then proceeds to give the substance of a conversation between Franklin and one of the principal residents of the town, concerning the origin of the American Indians.

The above statement appears to be sufficiently clear and explicit; but in order to make assurance doubly sure, the Rev. Dr. F. A. Muhlenberg has kindly examined the original authorities. In a private letter of July 27, 1887, he says: "I found a copy of Duyckinck's '*Cyclopedia*' in the Mercantile Library, and on page 175, as you mentioned, the exact words of your quotation. There was, however, no copy of the original work. I was not altogether satisfied. I went next to the Philadelphia Library and found an edition of Hector St. John Crèvecoeur, in French, into which it had been translated by the author. In the second chapter I found the same in substance with that given by Duyckinck, and the conversation with one of the citizens of the '*ville*' on the subject of the Indians of this country. The conversation is said to have taken place after the ceremonies. The words used by Mr. Crèvecoeur for the corner-stone are '*la premiere pierre.*' Such an explicit statement, with such details, could not be questioned. No man would, in the possession of reason, attempt to deceive the world in such a fashion. Besides, in the other parts of his work, consisting of three volumes, in this edition, he gives descriptions of our country, with engravings, which prove that he was an eye-witness of what he describes, and his truthful character. Still farther, all the books on bibliography represent him as a reliable author. Dr. Franklin was, therefore, in Lancaster, at what Mr. Crèvecoeur calls the laying of the '*premiere pierre,*' in the year 1787."

¹In the exercises attending the opening of the college, Franklin, it is said, was especially pleased to see Episcopalians, Presbyterians, Lutherans, Catholics, Moravians, and Quakers, all join harmoniously in the celebration.

²Of these exercises the Abbe Morellet wrote to Franklin from Auteuil, July 31, 1787: "In the dedication of your college in the county of Lancaster and the fine procession and the religious ceremony where were met together Presbyterians, Episcopalians, Lutherans, Catholics, Moravians, *e tutti quanti*, there was toleration in practice."

³See reprint, *The Founding of Franklin College, 1787*, by Rev. J. H. Dubbs, D. D., from the Reformed Quarterly Review, Philadelphia Reformed Church Publication Board, 907 Arch street.

It is not probable that the occasion to which reference is here made was literally the laying of the corner-stone, as the college had no building of its own until a later period. Of course, there might have been a minor festival of some sort, prior to the formal opening in June; but if this was the case it is strange that there is no reference to the fact in the correspondence of the times. It is, after all, most likely that Crevecoeur refers to the formal opening or so-called "dedication," and that this was the occasion on which Franklin was present. The fact, it is true, is nowhere explicitly stated, but there are many circumstances which render it probable. Franklin's name was frequently mentioned throughout the services, in a way which appears to have presupposed his presence. In each of the three original hymns he is spoken of with the highest reverence, and in one of them the college is termed "his child." The prayer delivered on the occasion by the Rev. Mr. Herbst closes with an intercession for "the noble Protector of the college, his Excellency Benjamin Franklin." Dr. Muhlenberg says, "I think it can be fairly inferred from the connection in which it stands and the peculiar prominence given to it, that His Excellency must have been present."

It has, indeed, been asserted that it was impossible for Dr. Franklin to have been in Lancaster, on account of his engagements in the Constitutional Convention in Philadelphia. On this subject Dr. Muhlenberg says, in the letter from which we have so freely quoted, "I have examined Madison's, Elliott's, and Yates's Reports, and one other, the author of which I do not now remember. I find that Dr. Franklin is reported by one and all of these authorities as present at the Constitutional Convention on Saturday and Monday, the 2d and 4th of June, taking part also in the proceedings, but there is no mention of his name or allusion to him on Wednesday, Thursday, and Friday, the 6th, 7th, and 8th of June, but on Saturday, 9th, his name again appears. Here is a margin to render it probable that he was absent for cause."

A hundred years after the founding of Franklin College, on the occasion of the centennial anniversary of the foundation of Franklin and Marshall College, an address on Franklin was delivered by William Pepper, M. D., LL. D., provost of the University of Pennsylvania.¹ There was a preëminent fitness in the choice of Dr. Pepper, the provost of the University which Franklin founded, and who has been instrumental in carrying out the essentials of Franklin's ideas as they apply to higher education. In the course of his address, Dr. Pepper said:

Franklin was admirably equipped as a popular teacher. Long study of the best models of English prose, aided by his fine literary sense, gave him a style unsurpassed for clearness and directness; while his rich vein of humor, his command of satire, of anecdote, and of terse, sententious phrase, enabled him to convey large truths in such portable and attractive forms that his teachings soon spread far and wide and fixed themselves in the memory and speech of men. But here, as in all cases, that which gave most weight to his teachings were the character and the life of the teacher.

He made the newspaper press a power for good, as it had never been before; and he set the example, and adhered to it throughout his editorial career, of preserving the columns of his paper free from all libeling and personal abuse, and all purveying to the prurient taste of a section of the community.

He was ever ready to recognize a public need, whether of school or library or hospital, and to devote his time, his energy, his money to supplying the deficiency.

¹Dr. Pepper, on this occasion, in a happy imitation of Franklin in 1791, gave \$1,000 to Franklin and Marshall College.

No man can carry through such public movements who is not himself liberal, and who does not give his full share in every way to support the enterprise. While the author of "Poor Richard" taught all classes alike the value of money, the duty of economy, the pride of independence, and the nobility of labor, and often by language or simile which may be misconstrued so as to advocate parsimony, the same self-taught, self-made man was incessant in all good and liberal deeds.

He recognized early the advantages of coöperation, and his treatment of deserving workmen is a suggestive point in the history of the relations of capital and labor. Our greatest problem of to-day has to deal with these relations. Our very prosperity forces it into greater prominence. The liberty and political rights of the individual give to it unprecedented urgency and importance. It may not be settled by force, nor by legislation, nor even by the church; but I believe it will be settled peacefully and lawfully, and to the mutual advantage of all concerned, by a wide extension of the principles of organized coöperation, based upon a humane yet shrewd calculation of the self-interest of both parties to the bargain; and I am glad to believe that as Franklin would have delighted to aid in consummating this his spirit and the influence of his teachings yet survive among us to assist in its realization and to remind us that toil, thrift, and temperance, with true humanity, are the key-notes of the successful solution of this great problem.

Lord Brougham wrote: "One of the most remarkable men, certainly of our times, as a politician, or of any age as a philosopher, was Franklin, who also stands alone in combining together these two characters, the greatest that man can sustain, and in this, that having borne the first part in enlarging science by one of the greatest discoveries ever made, he bore the second part in founding one of the greatest empires in the world." A mere enumeration of the notable scientific publications of Franklin would be too large for my purpose. All that it behooves us to do is to strive to appreciate the quality of this work, and the fact that it was done without encouragement or assistance, with the simplest self-made apparatus, and in the midst of distracting and absorbing business or political affairs. A keen observer by nature, he had trained himself to such incessant activity of mind and to the employment of so pure an inductive method that scarce anything escaped him, and every phenomenon observed started a train of philosophic reasoning so clear, so direct, and so well confined to the limits of the probable and demonstrable, that he was capable of securing astonishing scientific results with means apparently inadequate. The only period of his life when he gave himself up in any sense to scientific investigation, the only period during which he was not distinctively engaged in some other absorbing pursuit, were the five years, 1747 to 1752, when he began to enjoy the leisure earned by hard but profitable work. All know the outcome of this investigation, and that the discoveries made by Franklin in electricity, from their entire originality, the breadth and boldness of the generalization upon which they were based, the accuracy and conclusive nature of the experiments by which the hypotheses were established, the important practical results indicated by him, and the still more important results which have followed the further prosecution of the same study, have conferred immortality upon him, and placed him in the front rank of the natural philosophers of all times.

Our amazement can not be restrained when we reflect that this work was accomplished before he was 47 years of age, and that never again did he, who was then incomparably the most eminent American, and whose rank among European celebrities speedily rose to the highest point, have an opportunity of applying himself continuously to scientific research, although from that time to his death, at the age of 84, he continued to produce remarkable scientific papers containing original observations or striking generalizations, showing that the philosophic faculty was in vigorous action. It is idle to speculate upon what results might have followed a continuance of Franklin's scientific investigations. It has been granted to but few men to arrive at even a single discovery of such importance as that on which his

scientific fame chiefly rests; but in fertility of mind, originality of suggestion, and prolonged intellectual and bodily vigor Franklin appears to stand unrivaled.

We may more reasonably dwell on the joy it would give him could he return to see the position attained by his favorite branch of science, and to note that it is growing to be more and more the useful and reliable servant of man, ministering to his daily wants and rendering life more enjoyable and more healthy. But still more would he rejoice to see the laboratories erected in all parts of the land, equipped with every appliance for scientific investigation, and crowded with earnest, ingenious students, for some of whom fame holds high honors. He would feel, and with just pride, that to him more than to any other man, is due the splendid development of the scientific spirit and of scientific education in America, and that the institutions, the societies, and the libraries he founded or whose foundation he stimulated, are carrying forward and diffusing with ever-increasing force the precious light of scientific truth which he kindled here.

Franklin hated war. He hated it as a Christian, a philanthropist, and an economist. He hated unjust taxation scarcely less. To the familiar accusations against these he added one, possibly original with himself, and at least very characteristic of him. He charged them both with the crime of preventing the birth of children, the one by the downright murder of many men, the other by the interference with the normal ratio of marriages, whose possible services to the world are unknown and well nigh infinite. And this veneration for the possibilities of the young lay at the root of his ardent advocacy of education equally with his belief in the conservatism and elevating influence of all sound knowledge. "What is the use of this new invention?" some one asked Franklin. "What is the use of a new-born child?" was his reply. What, indeed, has not been the use of the loom or the steam engine—what not the precious value of a Howard, a Newton, a Franklin?

I have alluded to Franklin's work as a moralist, a statesman, and a scientist; it would be strange, indeed, if I were not to speak here of him as an educator and as a philanthropist. He was essentially a self-educated man, and he has left us a charming account of the methods he pursued in educating himself. Some may imagine that much of his characteristic strength and usefulness came from these lessons of early hardship. To me there certainly seems no ground for any such conclusion, in this or other cases, and he certainly did not hold that view. To assert that a great man who has educated himself is greater on that account involves improbable assumptions. The number of very great men is extremely small. They occur at irregular intervals of time and space. When one such occurs, who in addition to the other qualities of real greatness, has the added rare quality of determination to improve himself to the utmost, we have the condition produced of a lad with an elective course of studies secured under the most unfavorable surroundings. Franklin was preëminently such a lad. But while here and there lads of rare qualities, but lacking educational facilities, surmount all obstacles and achieve greatness, the world can never know how many fail to attain their legitimate development. It is true that under no system of education can we expect to produce many such men as Goethe, who graduated at Strasburg; or Voltaire, who studied at the celebrated Jesuit College of Louis le Grand; or Newton, who was an M. A. of Trinity College, Cambridge; or Franklin, who was strictly self-educated. But still less can we expect to produce under any one fixed, unvarying educational plan even as many as should appear. No system of education should be devised for the benefit of these rare and exceptional natures; but it is among the positive advantages of a well-arranged elective system of studies that, while it provides for the dull and lazy, it affords the freest facility for the development and expansion of the gifted and the industrious. It is not surprising, therefore, that Franklin, having found in his own case that excellent results were attained by the thorough mastery of English, followed by a study of other modern languages, before taking up the classics, should have been led to the conclusion that such is the natural and best course.

Probably all are familiar with the interesting history of the University of Pennsylvania. It had its origin in the Academy of Philadelphia, which was founded in 1749 through the exertions of Franklin. In the tract which he published at that time, entitled "Proposals relating to the education of youth in Pennsylvania," he remarks: "The good education of youth has been esteemed by wise men in all ages as surest foundation of the happiness both of private families and of common-wealths," and then proceeds to describe with much detail the course of study proposed. It is noteworthy that he gives a foremost place to athletics, providing "that the scholars be frequently exercised in running, leaping, wrestling, and swimming, to keep them in health, and to strengthen and render active their bodies." In this he anticipated the systematic instruction in athletics which has been introduced into our academies and colleges only recently, and after much unreasoning and ignorant opposition. Especial stress is laid on the fullness and thoroughness with which English is to be taught to all students, while in regard to other languages the following is provided: "All intended for divinity shall be taught the Latin and Greek; for physicks, the Latin, Greek, and French; for law, the Latin and French; merchants, the French, German, and Spanish; and though all should not be compelled to learn Latin, Greek, or the modern foreign languages, yet none that have an ardent desire to learn them should be refused, their English, arithmetic, and other studies absolutely necessary being at the same time not neglected." It is needless to point out with what clearness the fundamental principle of elective studies is here recognized, and how thoroughly in accord his conclusions as to the study of languages are with those which are now at last coming gradually to be adopted generally. What followed in the history of the academy (later the university) may be mentioned briefly, because, if I mistake not, an analogous experience was repeated here in the early days of Franklin College. So little heed was given to the proposals of the original founders, as to the preëminent position to be held by English studies, that the classicists gradually acquired control of the entire system of education in the institution, and in 1789, the year before Franklin's death, we find him publishing a spirited and forcible protest against a continuance of this perversion of the original trust. It is here that the familiar passage occurs, "at what time hats were first introduced we know not, but in the last century they were universally worn throughout Europe. Gradually, however, as the wearing of wigs and hair nicely dressed prevailed, the putting on of hats was disused by genteel people, lest the curious arrangement of curls and powdering should be disordered, and umbrellas began to supply the place; yet still, our considering the hat as a part of dress continues so far to prevail that a man of fashion is not thought dressed without having one, or something like one, about him, which he carries under his arm. So that there are a multitude of the politer people in all the courts and capital cities of Europe who have never, or their fathers before them, worn a hat otherwise than as a *chapeau bras*, though the utility of such a mode of wearing it is by no means apparent, and it is attended not only with some expense, but with a little degree of constant trouble. The still prevailing custom of having schools for teaching generally our children in these days the Latin and Greek languages I consider, therefore, in no other light than as a *chapeau bras* of modern literature." It is not impossible that the estrangement of many of the original patrons and trustees of the college, brought about by this departure from the proposed plan, may have aided, to some extent, in causing the house of assembly to arbitrarily withdraw the charter and estates of the college, thus causing a disastrous interference with its work during several years. And now, after the lapse of a century, we see, as well in the University of Pennsylvania as in other prominent colleges, success beginning to crown the efforts of those who would insist on a thorough and advanced study of English as one of the essentials for all English-speaking students, while arranging the other languages—Latin, Greek, Hebrew, German, French, Italian—in associated elective groups.

But Franklin's deep interest in education was not confined to the great institution of which he had been the founder; nor was his zeal abated by an absence in foreign countries at different times for nearly thirty years, nor even by the attainment of the full limit of fourscore years. For a long time he had taken great interest in the welfare of the Germans, who formed the bulk of the population in some parts of Pennsylvania. He aided in the establishment of schools for them, and served as a trustee of a society for the benefit of the poor among them; and in 1787, although in his 81st year, he was active in the promotion of the long-cherished scheme of founding a college for the education of young Germans. On March 10 of that year, 1787, an act was passed by the assembly incorporating and endowing the "German College and Charity School, in the borough and county of Lancaster," in which act it is recited that the college is established for the instruction of youth in the German, English, Latin, Greek, and other learned languages in theology, and in the useful arts, sciences, and literature." The same act of incorporation states that, from a profound respect for the talents, virtues, and services to mankind in general, but more especially to this country, of his Excellency Benjamin Franklin, esq., president of the supreme executive council, the said college shall be and hereby is denominated "Franklin College." Franklin was the largest contributor to its funds, giving of his moderate fortune the sum of \$1,000, which may be considered large for those days; and still more, when in the spring of 1787 the corner stone was to be laid in Lancaster, he underwent the pain and fatigue of a journey thither in order to perform that ceremony.

In the year 1787 Franklin became a member of the convention which framed the Constitution of the United States; of his speeches and influence in the convention we will make mention in considering his ideas as illustrated in his writings; he was somewhat of a physiocrat in the convention, and his ideas were in favor of a liberal government, not tending to monarchy, nor so big as to fall into anarchy. He was the diplomat in the convention, and typified the controlling idea of compromise, which at last gave us our Constitution.

During the closing years of his life we have glimpses of the persistency of the ideas formulated by him many years before. The well known account of Dr. Manasseh Cutler's visit to him in July, 1787, records the interest which Dr. Franklin still had in natural history: "of which," says Dr. Cutler, "he seemed extremely fond, while the other gentlemen were swallowed up with politics."

When, on the 17th of September, the convention adjourned, Franklin exerted himself to promote the adoption of the Constitution by the States. Its adoption by ten States occasioned a splendid celebration in Philadelphia in honor of the event, when all the interests of the city contributed to an industrial and civic parade. James Wilson, a delegate in the convention from Pennsylvania, eminent as a lawyer, whose services in the convention Washington considered as unsurpassed, and whom Bryce, in his *American Commonwealth*, has called "the greatest lawyer in the convention," professor of law in the University of Pennsylvania, and later justice of the Supreme Court of the United States, pronounced an oration. In the industrial parade there was drawn a car upon which was operated a printing press, and from this press was scattered among the people a song in honor of the trades, written by

Franklin, and suggestive of his utilitarian notions. Some of the stanzas as given by Parton¹ are:

Ye tailors! of ancient and noble renown,
Who clothe all the people in country and town,
Remember that Adam, your father and head,
Though Lord of the world, was a tailor by trade.

Ye shoemakers! noble from ages long past,
Have defended your rights with your *awl* to the last;
And cobblers so merry, not only stop holes,
But work night and day for the good of our *soles*.

Ye hatters! who oft with hands not very fair,
Fix hats on a block for a blockhead to wear;
Though charity covers a sin now and then,
You cover the heads and the sins of all men.

And carders, and spinners, and weavers attend,
And take the advice of Poor Richard, your friend,
Stick close to your looms, your wheels, and your card,
And you never need fear of the times being hard.

Ye coopers! who rattle with drivers and adz,
A lecture each day upon hoops and on heads,
The famous old ballad of Love in a Tub,
You may sing to the tune of your rub-a-dub-dub.

Each tradesman turn out with his tools in his hand,
To cherish the arts and keep peace in the land;
Each 'prentice and journeyman may join in my song,
And let the brisk chorus go bounding along.

The lines suggest how Franklin viewed the world as an opportunity for an industrious and intelligent apprentice.

Three times did the Commonwealth of Pennsylvania make Franklin its president, an honor which greatly gratified him.

Old age had crept upon him but his mental powers were undiminished, and his opinion of himself he expressed when he said, "I seem to have intruded myself into the company of posterity."

¹There is an interesting and perhaps curious illustration of changes in times and manners in a passage by Parton concerning the things which Franklin would particularly notice had he returned to this world twenty-five years ago. "He sometimes amused his friends with humorous predictions of inventions yet to be and expressed a wish to revisit the earth at the end of the century to see how man was getting on. Would that he could. How pleasant to show the shade of Franklin about the modern world. What would he say of the Great Eastern, the Erie Canal, the locomotive, the telegraph, the Hoe printing press, the steam typesetter, chloroform, the sewing machine, the Continental Hotel, the Fairmount waterworks, the improved strawberry, the omnibus, gas light, the sanitary commission, Dr. Buckle's History, Mill's Political Economy, Herbert Spencer's First Principles, Adam Bede, David Copperfield, the Philadelphia High School, Henry Ward Beecher's church, the Heart of the Andes! Surely he would admit that we have done pretty well in the seventy-five years that have passed since he left."—EDITOR.

He approached his death with calmness, and if he had neglected to practice order in his life, he made an orderly preparation for his death. His will, an elaborate document, sought to perpetuate in its provisions of a public nature the utilitarian ideas of its author. He seemed to have remembered his scheme of prizes in his sketch of an English school, and gave £100 to the managers of the Boston free schools, the interest of which was to be devoted to the purchase of silver medals for the encouragement of scholarship in these schools. He sought to make his benevolence immortal; it is said that his scheme is derived from a French work by Mathon de la Cour, but the idea is probably his own, as he had suggested in his loan to Benjamin Webb:

I send you herewith a bill for ten louis d'ors. I do not pretend to give such a sum; I only lend it to you. When you shall return to your country with a good character, you can not fail of getting into some business that will in time enable you to pay all your debts. In that case, when you meet with another honest man in similar distress, you must pay me by lending this sum to him; enjoining him to discharge the debt by a like operation, when he shall be able, and shall meet with such another opportunity. I hope it may thus go through many hands, before it meets with a knave that will stop its progress. This is a trick of mine for doing a deal of good with a little money. I am not rich enough to afford much in good works, and so am obliged to be cunning and make the most of a little.

Franklin's plan was for the benefit of artisan's and apprentices, and illustrates the utilitarian tendency of his life. It was as follows:

I have considered that among artisans good apprentices are most likely to make good citizens, and having myself been bred to a manual art, printing, in my native town, and afterwards assisted to set up my business in Philadelphia by kind loans of money from two friends there, which was the foundation of my fortune, and of all the utility in life that may be ascribed to me, I wish to be useful even after my death, if possible, in forming and advancing other young men, that may be serviceable to their country in both those towns. To this end I devote two thousand pounds sterling, of which I give one thousand thereof to the inhabitants of the town of Boston, in Massachusetts, and the other thousand to the inhabitants of the city of Philadelphia, in trust, to and for the uses, intents, and purposes hereinafter mentioned and declared.

The said sum of one thousand pounds sterling, if accepted by the inhabitants of the town of Boston, shall be managed under the direction of the selectmen, united with the ministers of the oldest Episcopalian, Congregational, and Presbyterian churches in that town, who are to let out the same upon interest at five per cent per annum to such young married artificers, under the age of twenty-five years, as have served an apprenticeship in the said town, and faithfully fulfilled the duties required in their indentures, so as to obtain a good moral character from at least two respectable citizens, who are willing to become their sureties, in a bond with the applicants, for the repayment of the moneys so lent, with interest, according to the terms hereinafter prescribed; all of which bonds are to be taken for Spanish milled dollars, or the value thereof in current gold coin; and the managers shall keep a bound book or books, wherein shall be entered the names of those who shall apply for and receive the benefits of this institution, and of their securities, together with the sums lent, the dates, and other necessary and proper records respecting the business and concerns of this institution. And as these loans are intended to assist young married artificers in setting up their business, they are to be proportioned, by the discretion of the managers, so as not to exceed sixty pounds sterling to one person, nor to be less than fifty pounds; and if the number of appliers so entitled should be so large as that the sum will not suffice to afford to each as much as might otherwise not be

improper, the proportion to each shall be diminished, so as to afford to every one some assistance. These aids may, therefore, be small at first, but, as the capital increases by the accumulated interest, they will be more ample. And, in order to serve as many as possible in their turn, as well as to make the repayment of the principal borrowed more easy, each borrower shall be obliged to pay, with the yearly interest, one tenth part of the principal, which sums of the principal and interest, so paid in, shall be again let out to fresh borrowers.

And, as it is presumed that there will always be found in Boston virtuous and benevolent citizens, willing to bestow a part of their time in doing good to the rising generation, by superintending and managing this institution gratis, it is hoped that no part of the money will, at any time be dead or be diverted to other purposes, but be continually augmenting by the interest; in which case there may, in time, be more than the occasion in Boston shall require, and then some may be spared to the neighboring or other towns in the said State of Massachusetts, who may desire to have it; such towns engaging to pay punctually the interest and the portions of the principal annually to the inhabitants of the town of Boston.

If this plan is executed, and succeeds as projected without interruption, for one hundred years, the sum will then be one hundred and thirty-one thousand pounds; of which I would have the managers of the donation to the town of Boston then lay out at their discretion one hundred thousand pounds in public works, which may be judged of the most general utility to the inhabitants; such as fortifications, bridges, aqueducts, public buildings, baths, pavements, or whatever may make living in the town more convenient to its people, and render it more agreeable to strangers resorting thither for health or a temporary residence. The remaining thirty-one thousand pounds I would have continued to be let out on interest, in the manner above directed for another hundred years, as I hope it will have been found that the institution has had a good effect on the conduct of youth, and been of service to many worthy characters and useful citizens. At the end of this second term, if no unfortunate accident has prevented the operation, the sum will be four millions and sixty-one thousand pounds sterling; of which I leave one million sixty-one thousand pounds to the disposition of the inhabitants of the town of Boston, and three millions to the disposition of the government of the State, not presuming to carry my views further.

All the directions herein given respecting the disposition and management of the donation to the inhabitants of Boston, I would have observed respecting that to the inhabitants of Philadelphia only, as Philadelphia is incorporated, I request the corporation of that city to undertake the management, agreeably to the said directions; and I do hereby vest them with fully and ample powers for that purpose."

Such was the plan adopted by Franklin, for the benefit of a class he always loved—skillful, honest mechanics. We shall have to state, by and by, what success has attended the benevolent project.

In 1789 he was rarely free from pain and was confined to his bed much of the time; we learn of him by his letters, which though less frequent, were equal to any that have made his correspondence so valuable and interesting. Though suffering great agony he attempts mental relief in reading Johnson's *Lives of the Poets*, and a life of Watts, his favorite author. His opinion of Watts anticipated the judgment of thousands who have found that poet their comfort. It was at this time also that he wrote his protest against the study of Latin and Greek in preference to the study of English,¹ in which, as we have said, he anticipated the reforms in modern education.

¹See observations relating to the intentions of the original founders of the Academy, in Philadelphia, June, 1789. *Supra*.

In August, 1787, the Library Company,¹ the outgrowth of the Junto of half a century before, laid the corner-stone of its new building in Philadelphia on Fifth street, opposite the State House.

Franklin, unable on account of his infirmities to attend the ceremony, wrote the inscription for the corner-stone, omitting any mention of himself. The committee amended the inscription, which reads :

Be it remembered
In honor of the Philadelphia Youth,
(then chiefly artificers)
that in MDCCXXXI.,
they cheerfully,
at the instance of Benjamin Franklin,
one of their number,
instituted the Philadelphia Library,
which, though small at first,
is become highly valuable and extensively useful
and which the walls of this edifice
are now destined to contain and preserve,
the first stone of whose foundation
was here placed,
the thirty-first day of August, 1789.²

Perhaps no institution founded by Franklin illustrates his sagacity and usefulness better than the Philadelphia Library. We referred briefly to its origin in the Junto. In 1880 a new library building was erected at the corner of Juniper and Locust streets, and in 1878 the magnificent structure known as the Ridgeway Branch at Broad and Christian was erected. The report of the Library Company in May, 1892, shows that during the year then ending there had been at the Locust street building 77,397 visitors on week days, 41,361 books had been taken out, and that there had been 6,074 visitors on Sundays who had asked at the desk for 5,387 books. At the Ridgeway Branch there had been on week days 3,325 visitors, 1,329 books had been given out, and 4,490 had been used in the Library, and on Sundays there had been 1,561 visitors, using 856 books. The volumes added to the Ridgeway Branch, to the Loganian Library, and to the Library Company, for the Locust Street building was 4,296, making a total number of books in the Library of 166,714 volumes. The receipts of the Library Company for 1891-'92 were \$68,665.56 and the balance carried forward to the credit of the Company for the year in the treasury was \$18,165.67. This magnificent showing illustrates the splendid outgrowth of Franklin's idea in founding a circulating library which started in 1732 with a membership of 12 persons and a voluntary contribution of some fifty books.

¹By an order of the directors of the Library Company, August 31, 1774, the delegates to the first Continental Congress were allowed the use of such of the books of the library as they might have occasion for during the sitting. (Elliot's Debates, Vol. I, 43).

²The original stone was discovered a few years ago, and is now set in the north wall of the Library building, Locust and Juniper streets.

The last public act of Franklin was in keeping with his whole philosophy of life; it was his reply, written on the 23d of March, 1790, but 26 days before his death, to a speech of Mr. Jackson in the Congress of the United States, on slavery. It was addressed to the editor of the *Federal Gazette*, and is in Franklin's happiest style. The essay pretended to be a speech delivered in the Divan of Algiers in 1687, against the petition of the sect called *Erika* or *Purists* who prayed for the abolition of piracy and slavery as being unjust. All the arguments advanced in favor of negro slavery were applied in this speech with equal force in the justification of the plundering and enslaving of Europeans. "Dr. Stuber, a distinguished Philadelphian of that day," says Parton, "mentions that many persons searched the book stores and libraries of the town for 'Martin's Account of his Consulship, anno 1687,' from which the speech of Sidi Mehemet Ibrahim was said to have been taken."¹

This grand protest against slavery was a happy bequest of Franklin to mankind. From his persuasion—

That equal liberty was originally the portion, and is still the birth-right, of all men, and influenced by the strong ties of humanity, and the principles of their institution * * * to use all justifiable endeavors to loosen the bands of slavery, and promote a general enjoyment of the blessings of freedom.

A few days before his death, in reply to a request from his old friend Ezra Stiles, President of Yale College, asking him to give his portrait for the college library, Franklin answered with respect to his own religious opinions:

Here is my creed. I believe in one God, the Creator of the Universe. That he governs it by his Providence. That he ought to be worshipped. The most acceptable service we render to him is doing good to his other children. The soul of man is immortal and will be treated with justice in another life respecting its conduct in this. These I take to be the fundamental points in all sound religion, and I regard them, as you do, in whatever sect I meet with them.

As to Jesus of Nazareth, my opinion of whom you particularly desire, I think his system of morals and his religion, as he left them to us, the best the world ever saw, or is like to see; but I apprehend it has received various corrupting changes, and I have, with most of the present Dissenters in England, some doubts as to his divinity; though it is a question I do not dogmatize upon, having never studied it, and think it needless to busy myself with it now, when I expect soon an opportunity of knowing the truth with less trouble. I see no harm, however, in its being believed, if that belief has the good consequence, as probably it has, of making his doctrines more respected and more observed; especially as I do not perceive that the Supreme takes it amiss, by distinguishing the unbelievers in his government of the world with any peculiar mark of displeasure.

I shall only add, respecting myself, that, having experienced the goodness of that Being in conducting me prosperously through a long life, I have no doubt of its continuance in the next, though without the smallest conceit of meriting such goodness.

P. S.—I confide that you will not expose me to criticisms and censures by publishing any part of this communication to you. I have ever let others enjoy their religious sentiments without reflecting on them for those that appeared to me unsupport-

¹ See the article in full Bigelow, Vol. x.

able or even absurd. All sects here, and we have a great variety, have experienced my good will in assisting them with subscriptions for the building their new places of worship; and, as I have never opposed any of their doctrines, I hope to go out of the world in peace with them all.

As death approached and his strength failed, his breathing became oppressed and some one suggested a change of position that he might breathe easier; Franklin, conscious of the change through which he was passing, said, "A dying man can do nothing easy." Soon after he passed away.¹

The news of Franklin's death was received with sorrow throughout the civilized world. The city of his adoption gave him an honorable burial. Four days after his death his body was laid at rest by the side of his beloved wife in the burial ground of Christ Church on Arch street, near Fifth.²

In the House of Representatives, on the 22d of April, James Madison spoke of Franklin as "an illustrious character whose native genius has rendered distinguished service to the cause of science and of mankind in general, and whose patriotic exertions have contributed in a high degree to the independence and prosperity of this country."

At Yale College its president, Dr. Stiles, preached a sermon on the character of Franklin, and at the request of the American Philosophical Society, Dr. William Smith, one of its members, pronounced the well-known eulogy on the character and services of Franklin.

On the 11th of June Mirabeau spoke before the National Legislature of France in eulogy of Franklin. His speech has been long familiar to Americans in their reading books, although in late years it has not been so frequently printed.

Franklin is dead! The genius that freed America and poured a flood of light over Europe has returned to the bosom of the Divinity.

The sage whom two worlds claim as their own, the man for whom the history of science and the history of empires contend with each other, held, without doubt, a high rank in the human race.

Too long have political cabinets taken formal note of the death of those who were

¹He died April 17, 1790, at 11 p. m., aged 84 years, 3 months, and 11 days.

²The order of the procession was: All the clergy of the city before the corpse; the corpse, carried by citizens; the pall, supported by the president of the State, the chief-justice, the president of the bank, Samuel Powell, William Bingham, and David Rittenhouse, esquires; mourners, consisting of the family of the deceased with a number of particular friends; the secretary and members of the supreme executive council; the speaker and members of the general assembly; judges of the supreme court and other officers of the Government; the gentlemen of the bar; the mayor and corporation of the city of Philadelphia; the printers of the city with their journeymen and apprentices; the philosophical society, the college of physicians; the Cincinnati; the college of Philadelphia; sundry other societies, together with a numerous and respectable body of citizens.

The concourse of spectators was greater than ever was known on a like occasion. It is computed that not less than twenty thousand persons attended and witnessed the funeral, the order and silence which prevailed during the procession deeply evinced the heartfelt sense entertained by all classes of citizens, of the unparalleled virtues, talents, and services of the deceased.

great only in their funeral panegyrics. Too long has the etiquette of courts prescribed hypocritical mourning. Nations should wear mourning only for their benefactors. The representatives of nations should recommend to their homage none but the heroes of humanity.

The Congress has ordained, throughout the United States, a mourning of one month for the death of Franklin, and at this moment America is paying this tribute of veneration and gratitude to one of the fathers of her Constitution.

Would it not become us, gentlemen, to join in this religious act, to bear a part in this homage, rendered, in the face of the world, both to the rights of man and to the philosopher who has most contributed to extend their sway over the whole earth? Antiquity would have raised altars to this mighty genius, who, to the advantage of mankind, compassing in his mind the heavens and earth, was able to restrain alike thunderbolts and tyrants. Europe, enlightened and free, owes at least a token of remembrance and regret to one of the greatest men who has ever been engaged in the service of philosophy and liberty.

I propose that it be decreed that the National Assembly, during three days, shall wear mourning for Benjamin Franklin.

The Society of Printers of Paris paid honors to his memory on the day of the municipal celebration. Conspicuous in an apartment of the Café Procope was placed a bust of Franklin, and beneath it on the pedestal was engraved the significant word "Vir."

It is inexpedient, as well as far from my purpose in this humble effort, to sketch the influence of Franklin's ideas in education, for me to make quotations from the numerous estimates of Franklin by his contemporaries and by posterity, but a few of these may be quoted to show the general opinion of his educational influence. It will be noticed in those from which I quote that it is of Franklin, the self-taught American, the self-educated man, the scientist, the projector of useful schemes, the benefactor, the philanthropist, the lover of his kind, the utilitarian philosopher, that eulogy is pronounced.

Lord Jeffreys, in the *Edinburgh Review*, of July, 1806, says—

This self-taught American is the most rational, perhaps, of all philosophers. He never loses sight of common sense in any of his speculations, and when his philosophy does not consist entirely in its fair and vigorous application, it is always regulated and controlled by it in its application and result. No individual, perhaps, ever possessed a juster understanding, or was so seldom obstructed in the use of it by indolence, enthusiasm, or authority. Dr. Franklin received no regular education, and he spent the greater part of his life in a society where there was no relish and no encouragement for literature. On an ordinary mind, these circumstances would have produced their usual effects of repressing all sorts of intellectual ambition or activity, and perpetuating a generation of incurious mechanics; but to an understanding like Franklin's, we can not help considering them as peculiarly propitious, and imagine that we can trace back to them distinctly almost all the peculiarities of his intellectual character. Regular education, we think, is unfavorable to vigor or originality of understanding. Like civilization, it makes society more intelligent and agreeable, but it levels the distinctions of nature. It strengthens and assists the feeble, but it deprives the strong of his triumph, and casts down the hopes of the aspiring. It accomplishes this, not only by training up the mind in a habitual veneration for authorities, but by leading us to bestow a disproportionate degree of attention upon studies that are only valuable as keys or instruments for the understanding; they come at last to be regarded as ultimate objects of pursuit, and the means of education are absurdly mistaken for its end. How many powerful

understandings have been lost in the Dialectics of Aristotle! And of how much good philosophy are we daily defrauded by the preposterous error of taking a knowledge of prosody for useful learning! The mind of a man who has escaped this training will at least have fair play. Whatever other errors he may fall into, he will be safe at least from these insatinations. If he thinks proper, after he grows up, to study Greek, it will be for some better purpose than to become acquainted with its dialects. His prejudices will be those of a man, and not of a school boy, and his speculations and conclusions will be independent of the maxims of tutors and the oracles of literary patrons. The consequences of living in a refined and literary community are nearly of the same kind with those of a regular education. There are so many critics to be satisfied, so many qualifications to be established, so many rivals to encounter, and so much derision to be hazarded, that a young man is apt to be deterred from so perilous an enterprise, and led to seek for distinction in some safer line of exertion. He is discouraged by the fame and perfection of certain models and favorites, who are always in the mouths of his judges, and, "under them his genius is rebuked," and his originality repressed, till he sinks into a paltry copyist or aims at distinction by extravagance and affectation. In such a state of society he feels that mediocrity has no chance of distinction; and what beginner can expect to rise at once into excellence? He imagines that mere good sense will attract no attention, and that the manner is of much more importance than the matter in a candidate for public admiration. In his attention to the manner the matter is apt to be neglected, and in his solicitude to please those who require elegance of diction, brilliancy of wit, or harmony of periods, he is in some danger of forgetting that strength of reason and accuracy of observation by which he first proposed to recommend himself. His attention, when extended to so many collateral objects, is no longer vigorous or collected; the stream, divided into so many channels, ceases to flow either deep or strong; he becomes an unsuccessful pretender to fine writing, and is satisfied with the frivolous praise of elegance or vivacity.

We are disposed to ascribe so much power to these obstructions to intellectual originality, that we can not help fancying that if Franklin had been bred in a college he would have contented himself with expounding the meters of Pinda, and mixing argument with his port in the common room; and that if Boston had abounded with men of letters he would never have ventured to come forth from his printing house, or been driven back to it, at any rate, by the sneers of the critics, after the first publication of his essays in the "Busybody." This will probably be thought exaggerated; but it can not be denied, we think, that the contrary circumstances in his history had a powerful effect in determining the character of his understanding, and in producing those peculiar habits of reasoning and investigation by which his writings are distinguished. He was encouraged to publish because there was scarcely any one around him whom he could not easily excel. He wrote with great brevity, because he had not leisure for more voluminous compositions, and because he knew that the readers to whom he addressed himself were, for the most part, as busy as himself. For the same reason he studied great perspicuity and simplicity of statement; his countrymen had no relish for fine writing, and could not easily be made to understand a deduction depending on a long or elaborate process of reasoning. He was forced, therefore, to concentrate what he had to say; and since he had no chance of being admired for the beauty of his composition, it was natural for him to aim at making an impression by the force and the clearness of his statements. His conclusions were often rash and inaccurate, from the same circumstances which rendered his productions concise. Philosophy and speculation did not form the business of his life, nor did he dedicate himself to any particular study with a view to exhaust and complete the investigation of it in all its parts and under all its relations. He engaged in every interesting inquiry that suggested itself to him, rather as the necessary exercise of a powerful and active mind than as a task which he had bound himself to perform. He cast a quick and penetrating glance over the facts and the

data that were presented to him, and drew his conclusions with a rapidity and precision that have not often been equaled; but he did not stop to examine the completeness of the data upon which he proceeded, nor to consider the ultimate effect or application of the principles to which he had been conducted. In all questions, therefore, where the facts upon which he was to determine and the materials from which his judgment was to be formed were either few in number or of such a nature as not to be overlooked, his reasons are for the most part perfectly just and conclusive and his decisions unexceptionably sound, but where the elements of the calculation were more numerous and widely scattered it appears to us that he has often been precipitate, and that he has either been misled by a partial apprehension of the conditions of the problem or has discovered only a portion of the truth which lay before him.

In all physical inquiries, in almost all questions of particular and immediate policy, and in much of what relates to the practical wisdom and happiness of private life, his views will be found to be admirable, and the reasoning by which they are supported, most masterly and convincing. But upon subjects of general politics, of abstract morality and political economy, his notions appear to be more unsatisfactory and incomplete. He seems to have wanted leisure, and perhaps inclination also, to spread out before him the whole vast premises of these extensive sciences, and scarcely to have had patience to hunt for his conclusions through so wide and intricate a region as that upon which they invited him to enter. He has been satisfied, therefore, on every occasion with reasoning from a very limited view of the facts, and often from a particular instance. He has done all that sagacity and sound sense could do with such materials, but it can not excite wonder if he has sometimes overlooked an essential part of the argument, and often advanced a particular truth into the place of a general principle. He seldom reasoned upon these subjects at all, we believe, without having some practical application of them immediately in view, and as he began the investigation rather to determine a particular case than to establish a general maxim so he probably desisted as soon as he had relieved himself of the present difficulty. There are not many among the thoroughbred scholars and philosophers of Europe who can lay claim to distinction in more than one or two departments of science or literature. The uneducated tradesman of America has left writings that call for our attention in natural philosophy, in politics, in political economy, and in general literature and morality.

As a writer on morality and general literature, the merits of Dr. Franklin can not be estimated properly without taking into consideration the peculiarities that have been already alluded to in his early history and situation. He never had the benefit of any academical instruction, nor of the society of men of letters. His style was formed entirely by his own judgment and occasional reading, and most of his moral pieces were written while he was a tradesman, addressing himself to the tradesmen of his native city. We can not expect, therefore, that he should write with extraordinary eloquence or grace, or that he should treat of the accomplishments, follies, and occupations of polite life. He had no great occasion, as a moralist, to expose the guilt and folly of gaming or seduction, or to point a poignant and playful ridicule against the higher immoralities of fashionable life. To the mechanics and traders of Boston and Philadelphia such warnings were altogether unnecessary, and he endeavored, therefore, with more appropriate eloquence, to impress upon them the importance of industry, sobriety, and economy, and to direct their wise and humble ambition to the attainment of useful knowledge and honorable independence. That morality, after all, is certainly the most valuable, which is adapted to the circumstances of the greater part of mankind, and that eloquence is the most meritorious that is calculated to convince and persuade the multitude to virtue. Nothing can be more perfectly and beautifully adapted to its object than most of Dr. Franklin's compositions of this sort. The tone of familiarity, of good will, and homely jocularity, the plain and pointed illustrations, the short sentences, made up of short

words, and the strong sense, clear information, and obvious conviction of the author himself, make most of his moral exhortations perfect models of popular eloquence, and afford the finest specimens of a style which has been but too little cultivated in a country which numbers perhaps more than 100,000 readers among its tradesmen and artificers.

In writings which possess such solid and unusual merit, it is of no great consequence that the fastidious eye of a critic can discover many blemishes. There is a good deal of vulgarity in the practical writings of Dr. Franklin; and more vulgarity than was in any way necessary for the object he had in view. There is something childish, too, in some of his attempts at pleasantry; his story of the whistle, and his Parisian letter, announcing the discovery that the sun gives light as soon as he rises, are instances of this. The Soliloquy of an Ephemeris, however, is much better; and both it, and the Dialogue with the Gout, are executed with the lightness and spirit of genuine French compositions. The Speech in the Divan of Algiers, composed as a parody on those of the defenders of the slave-trade, and the scriptural parable against persecution, are inimitable; they have all the point and facility of the fine pleasantries of Swift and Arbuthnot, with something more of directness and apparent sincerity. The style of his letters, in general, is excellent. They are chiefly remarkable for great simplicity of language, admirable good sense and ingenuity, and an amiable and inoffensive cheerfulness, that is never overclouded or eclipsed.

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Upon the whole, we look upon the life and writings of Dr. Franklin as affording a striking illustration of the incalculable value of a sound and well-directed understanding, and of the comparative uselessness of learning and laborious accomplishments. Without the slightest pretensions to the character of a scholar or a man of science, he has extended the bounds of human knowledge on a variety of subjects, which scholars and men of science had previously investigated without success; and has only been found deficient in those studies which the learned have generally turned from in disdain. We would not be understood to say anything in disparagement of scholarship and science; but the value of these instruments is apt to be overrated by their possessors, and it is a wholesale mortification to show them that the work may be done without them. We have long known that their employment does not insure success.

In 1812, Sir James Mackintosh said:

The cause of the Americans in France owed part of its success to the peculiar character, as well as extraordinary talents, of their agent at Paris, Benjamin Franklin. Bred a printer, at Boston, he had raised himself to a respectable station by the most ingenious industry and frugality; and having acquired celebrity by his philosophical discourses, he had occupied a considerable office in the colonies at the commencement of the disturbance. This singular man long labored to avert a rupture, and, notwithstanding his cold and cautious character, he shed tears at the prospect of separation; but he was too wise to deliberate after decision. Having once made his determination, he adhered to it with a firmness which neither the advances of England nor the adversity of America could shake. He considered a return to the ancient friendship as impossible, and every conciliatory proposal as a snare to divide America and to betray her into absolute submission. At Paris he was preceded and aided by his philosophical fame. His steady and downright character was a singularity which the accomplished diplomatists of France had not learned how to conquer. The simplicity of a Republican, a Presbyterian, and a printer, transported at the age of 70 to the most polished court of Europe, by amusing the frivolous and interesting the romantic, excited a disposition at Versailles favorable to his cause.

Early accustomed to contemplate infant societies and uncultivated nature, his mind was original and independent. He derived neither aid nor incumbrance from learn-

ing, which enslaves every mind not powerful to master and govern it. He was, therefore, exempt from those prejudices of nation and age which every learned education fosters. Reared in the colonies struggling into existence, where necessity so often calls out ingenious contrivance, he adapted even philosophical experiment to the direct convenience of mankind. The same spirit is still more conspicuous in his moral and political writings. An independence of thought, a constant and direct reference to utility, a consequent abstinence from whatever is merely curious and ornamental or even remotely useful, a talent for ingeniously betraying vice and prejudice into an admission of reason, and for exhibiting their sophisms in that state of undisguised absurdity in which they are ludicrous, with a singular power of striking illustrations from homely objects, would justify us in calling Franklin the American Socrates.

John Foster, in 1818, said:

The character displayed by Franklin's correspondence is an unusual combination of elements. The main substance of the intellectual part of it is a superlative good sense, evinced and acting in all the modes of that high endowment, such as an intuitively prompt and perfect and steadily continuing apprehension; a sagacity which, with admirable ease, strikes through all superficial and delusive appearance of things to the essence and true relations; a faculty of reasoning in a manner marvelously simple, direct, and decisive; a power of reducing a subject or question to its plainest principles; an unaffected daring to meet whatever is to be opposed in an explicit, direct manner, and in the point of its main strength; a facility of applying familiar truth and self-evident propositions for resolving the most uncommon difficulties, and a happy adroitness of illustration by parallel cases, supposed or real, the real ones being copiously supplied by a large and most observant acquaintance with the world. * * * His feelings do not seem to have been elevated above the pitch of calm satisfaction at having materially contributed to the success of a righteous cause, a success in which he was convinced he saw not simply the vindication of American rights, but the prospect of unlimited benefit of mankind. And here it may be remarked that his predominant passion appears to have been a love of the useful. The useful was to him the *summum bonum*, the supreme fair, the sublime and the beautiful, which it may not perhaps be extravagant to believe he was in quest of every week for half a century, in whatever place, or study, or practical undertaking. No department was too plain or humble for him to occupy himself in for this purpose; and in affairs of the most ambitious order this was still systematically his object. Whether in directing the constructing of chimneys or of constitutions, lecturing on the saving of candles or on the economy of national revenues, he was still intent on the same end, the question always being how to obtain the most solid tangible advantage by the plainest and easiest means. There has rarely been a mortal of high intelligence and flattering fame on whom the pomps of life were so powerless. On him were completely thrown away the oratorical and poetical heroics about glory, of which heroics it was enough that he easily perceived the intention or effect to be to explode all sober truth and substantial good, and to impel men, at the very best of the matter, through some career of vanity, but commonly through mischief, slaughter, and devastation, in mad pursuit in what amounts at least, if attained, to some certain quantity of noise and empty show, and intoxicated transient elation. He was so far an admirable spirit for acting the mentor to a young republic.

Lord Brougham said, in 1839:

One of the most remarkable men, certainly, of our times, as a politician, or of any age, as a philosopher, was Franklin, who also stands alone in combining together these two characters, the greatest that man can sustain, and in this, that having borne the first part in enlarging science by one of the greatest discoveries ever made, he bore the second part in founding one of the greatest empires in the world.

In this truly great man every thing seems to concur that goes towards the constitution of exalted merit. First, he was the architect of his own fortune. Born in the humblest station, he raised himself by his talents and his industry, first to the place in society which may be attained with the help only of ordinary abilities, great application, and good luck; but next to the loftier heights which a daring and happy genius alone can scale; and the poor printer's boy, who, at one period of his life, had no covering to shelter his head from the dews of night, rent in twain the proud dominion of England, and lived to be the ambassador of a Commonwealth which he had formed at the court of the haughty monarchs of France, who had been his allies.

Then he had been tried by prosperity as well as adverse fortune, and had passed unhurt through the perils of both. No ordinary apprentice, no common-place journeyman, ever laid the foundations of his independence in habits of industry and temperance more deep than he did, whose genius was afterward to rank him with the Galileos and Newtons of the Old World. No patrician, born to shine in courts, or assist at the councils of monarchs, ever bore his honors in a lofty station more easily, or was less spoiled by the enjoyment of them, than this common workman did when negotiating with royal representatives, or caressed by all the beauty and fashion of the most brilliant court in Europe.

Again, he was self-taught in all he knew. His hours of study were stolen from those of sleep and of meals, or gained by some ingenious contrivance for reading while the work of daily calling went on. Assisted by none of the helps which affluence tenders to the studies of the rich, he had to supply the place of tutors by redoubled diligence, and of commentaries by repeated perusal. Nay, the possession of books was to be obtained by copying what the art, which he himself exercised, furnished easily to others.

Next, the circumstances under which others succumb he made to yield, and bend to his own purposes, a successful leader of a revolt that ended in complete triumph, after appearing desperate for years; a great discoverer in philosophy, without the ordinary helps to knowledge; a writer, famed for his chaste style, without a classical education; a skillful negotiator, though never bred to politics; ending as a favorite, nay a pattern, of fashion, when the guest of frivolous courts, the life which he had begun in garrets and in workshops.

Lastly, combinations of faculties, in others deemed impossible, appeared easy and natural to him. The philosopher, delighted in speculation, was also eminently a man of action. Ingenious reasoning, refined and subtle consultation, were in him combined with prompt resolution and inflexible firmness of purpose. To a lively fancy he joined a learned and deep reflection; his original and inventive genius stooped to the convenient alliance of the most ordinary prudence in every-day affairs; the mind that soared above the clouds and was conversant with the loftiest of human contemplations disdained not to make proverbs and feign parables for the guidance of apprenticed youths and servile maidens; and the hands that sketched a free constitution for a whole continent or drew down the lightning from heaven easily and cheerfully lent themselves to simplify the apparatus by which truths were to be illustrated or discoveries pursued.

His whole course, both in acting and in speculation, was simple and plain, ever preferring the easiest and the shortest road, nor ever having recourse to any but the simplest means to compass his ends. His policy rejected all refinements, and aimed at accomplishing its purposes by the most rational and obvious expedients. His language was unadorned, and used as a medium of communicating his thoughts, not of raising admiration, but it was pure, expressive, racy. His manner of reasoning was manly and cogent, the address of a rational being to others of the same order, and so concise that, preferring decision to discussion, he never exceeded a quarter of an hour in any public address. His correspondence upon business, whether private or on state affairs, is a model of clearness and compendious shortness, nor can any

state papers surpass in dignity and impression those of which he is believed to have been the author in the earlier part of the American Revolutionary war. His mode of philosophizing was the purest application of the inductive principle, so eminently adapted to his nature and so clearly dictated by common sense that we can have little doubt it would have been suggested by Franklin, if it had not been unfolded by Bacon, though it is as clear that, in this case, it would have been expounded in far more simple terms. But of all this man's scientific excellencies, the most remarkable is the smallness, the simplicity, the apparent inadequacy of the means which he employed in his experimental researches. His discoveries were made with hardly any apparatus at all, and if, at any time, he had been led to employ instruments of a somewhat less ordinary description, he never rested satisfied until he had, as it were, afterward translated the process, by revolving the problem with such simple machinery that you might say he had done it wholly unaided by apparatus. The experiments by which the identity of lightning and electricity was demonstrated were made with a sheet of brown paper, a bit of twine, a silk thread, and an iron key.

Upon the integrity of this great man, whether in public or in private life, there rests no stain. Strictly honest, and even scrupulously punctual in all his dealings, he preserved in the highest fortune that regularity which he had practiced as well as inculcated in the lowest. The phrase which he once used when interrupted in his proceedings upon the most arduous and important affairs, by a demand of some petty item in a long account—"Thou shalt not muzzle the ox that treads out the corn"—has been cited against him as proving the laxity of his dealings when in trust of public money; it plainly proves the reverse, for he well knew, in a country abounding in discussion, and full of bitter personal animosities, nothing could be gained of immunity by refusing to produce his vouchers at the fitting time; and his venturing to use such language demonstrates that he knew his conduct to be really above all suspicion.

In domestic life he was faultless and in the intercourse of society delightful. There was a constant good humor and a playful wit, easy and of high relish, without any ambition to shine, the natural fruit of his lively fancy, his solid, natural good sense, and his cheerful temper, that gave his conversation an unspeakable charm, and alike suited every circle, from the humblest to the most elevated. With all his strong opinions, so often solemnly declared, so imperishably recorded in his deeds, he retained a tolerance for those who differed with him which could not be surpassed in men whose principles hang so loosely about them as to be taken up for a convenient cloak and laid down when found to impede their progress. In his family he was everything that worth, warm affections, and sound prudence could contribute to make a man both useful and amiable, respected and beloved. In religion he would by many be reckoned a latitudinarian; yet it is certain that his mind was imbued with a deep sense of the Divine perfections, a constant impression of our accountable nature, and a lively hope of future enjoyment. Accordingly, his death bed, the test of both faith and works, was easy and placid, resigned and devout, and indicated at once an unflinching retrospect of the past and a comfortable assurance of the future.

If we turn from the truly great man whom we have been contemplating to his celebrated contemporary in the old world, Frederick II, who only affected the philosophy that Franklin possessed, and employed his talents for civil and military affairs in extinguishing that independence which Franklin's life was consecrated to establish, the contrast is marvelous indeed between the monarch and the printer.

In 1856 Robert C. Winthrop said:

Certainly, if any man of his age, or of almost any other age, ever earned the reputation of a doer of good, and of having lived usefully, it was Benjamin Franklin. No life was ever more eminently and practically a useful life than his. Capable of the greatest things, he condescended to the humblest. He never sat down to make

himself famous. He never secluded himself from the common walks and duties of society in order to accomplish a great reputation, much less to accumulate a great fortune. He wrote no elaborate histories, or learned treatises, or stately tomes. Short essays or tracts, thrown off at a heat to answer an immediate end, letters to his associates in science or politics, letters to his family and friends; these make up the great bulk of his literary productions; and, under the admirable editorship of Mr. Sparks, nine noble volumes do they fill, abounding in evidences of a wisdom, sagacity, ingenuity, diligence, freshness of thought, fullness of information, comprehensiveness of reach, and devotedness of purpose, such as are rarely to be found associated in any single man. Wherever he found anything to be done, he did it; anything to be investigated, he investigated it; anything to be invented or discovered, he forthwith tried to invent or discover it, and almost always succeeded. He did everything as if his whole attention in life had been given to that one thing. And thus, while he did enough in literature to be classed among the great writers of his day, enough in invention and science to secure him the reputation of a great philosopher, enough in domestic politics to win the title of a great statesman, enough in foreign negotiations to merit the designation of a great diplomatist, he found time enough, also, in works of general utility, humanity, and benevolence, to insure him a perpetual memory as a great philanthropist.

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No form of personal suffering or social evil escaped his attention, or appealed in vain for such relief or remedy as his prudence could suggest or his purse supply. From that day of his early youth, when, a wanderer from his home and friends in a strange place, he was seen sharing his rolls with a poor woman and child, to the last act of his public life, when he signed that well-known memorial to Congress, as president of the Anti-Slavery Society of Pennsylvania, a spirit of earnest and practical benevolence runs like a golden thread along his whole career. Would to Heaven that he could have looked earlier at that great evil at which he looked at last, and that the practical resources and marvelous sagacity of his mighty intellect could have been brought seasonably to bear upon the solution of a problem now almost too intricate for any human faculties! Would to Heaven that he could have taken his invention for a mode of drawing the fire safely from that portentous cloud, in his day, indeed, hardly bigger than a man's hand, but which is now blackening the whole sky, and threatening to rend asunder that noble fabric of union, of which he himself proposed the earliest model!

But no estimate of Franklin is probably more correct and at the same time expressive of the opinion which the people of the United States hold of Franklin than that pronounced by Horace Greeley in 1862. Horace Greeley was another Franklin, a man self-made, a utilitarian, and a public character. He differed from Franklin in degree rather than in kind. Perhaps if Franklin could have returned to earth in 1862 he would have found no more congenial companion than Horace Greeley.

Of the men whom the world currently terms self-made—that is, who severally fought their life-battles without the aid of inherited wealth, or family honors, or educational advantages, perhaps our American Franklin stands highest in the civilized world's regard. The salient feature of his career is its uniformity. In an age of wars, he never led an army, nor set a squadron in the field. He never performed any dazzling achievement. Though an admired writer and one of the greatest scientific discoverers, he was not a genius. His progress from the mean tallow chandler's shop of his Boston father, crammed full of hungry brothers and sisters, to the gilded salons of Versailles, where he stood the "observed of all observers"—in fact, more a king than the gentle Louis, was marked by no abrupt transition, no break, no

bound; he seems not so much to have risen as to have grown. You can not say when he ceased to be poor, or unknown, or powerless; he steps into each new and higher position as if he had been born for just that; you know that his newspaper, his almanac, his electrical researches, his parliamentary service, his diplomacy, were the best of their time, but who can say that he was more admirable in one field of useful effort than another? An ambassador, it has been smartly said, is one "sent abroad to lie for his country," yet you feel that this man could eminently serve his country in perfect truth; that his frank sincerity and heartfelt appreciation of the best points in the French character, in Parisian life, served her better than the most artful dissimulation, the most plausible hypocrisy. The French alliance was worth more to us than Saratoga, for it gave us Yorktown, and it was not Gates's victory, as is commonly asserted, but Franklin's power and popularity, alike in the salons and at court, that gained us the French alliance.

We can not help asking, were poverty and obstacle among the causes, or only the incident of this man's greatness? Had he been cradled in affluence and dandled in the lap of luxury; had he been crammed by tutors and learnedly bored by professors; had Harvard or Yale conferred degrees upon him at twenty, as they both rather superfluously did when he was nearly fifty; had his youth been devoted to Latin conjugations and Greek hexameters rather than to candle-dipping and typesetting, would he have been the usefully great man he indisputably was? Admit that these queries can never be conclusively answered, they may yet be profitably pondered.

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I think I adequately appreciate the greatness of Washington, yet I must place Franklin above him as the consummate type and flowering of human nature under the skies of colonial America. Not that Washington was born to competence and all needful facilities for instruction, so that he began responsible life on vantage ground that Franklin toiled twenty arduous, precious years to reach; I can not feel that this fact has undue weight with me. I realize that there are elements of dignity, of grandeur, in the character of Washington for which that of Franklin affords no parallel. But when I contemplate the immense variety and versatility of Franklin's services to his country and to mankind; when I think of him as a writer whose first effusions commanded attention in his early boyhood; as the monitor and teacher of his fellow journeymen in a London printing office; as almost from the outset a prosperous and influential editor when journalism had never before been a source of power; as taking his place naturally at the head of the postal service in America, and of the earliest attempts to form a practical confederation of the colonies; when I see him, never an enthusiast, and now nearly three-score-and-ten, renouncing office, hazarding fame, fortune, everything, to struggle for the independence of his country, he having most to lose by failure of any American, his only son a bitter loyalist, he cheerfully and repeatedly braving the dangers of an ocean swarming with enemies, to render his country the service as ambassador which no other man could perform, and finally, when more than eighty years old, crowning a life of duty and honor by helping to frame that immortal Constitution which made us one nation forever, I can not place Franklin second to any other American. He could not have done the work of Washington—no other man could; but then he did so many admirable things which Washington had too sound a judgment even to attempt. And, great as Washington was, he was not great enough to write and print after he had achieved power and world-wide fame, a frank, ingenuous confession of his youthful follies and sins for the instruction and admonition of others. Many a man can look calmly down the throats of roaring cannon who lacks the courage and true philanthropy essential to those called to render this service to mankind.

CHAPTER II.

FRANKLIN'S IDEAS IN EDUCATION AS SEEN IN HIS WRITINGS.

At 22 years of age Franklin wrote his "Articles of Belief and Acts of Religion," in which he laid down his so-called "first principles;" this was his first serious effort toward self-education in morality. The principles are a liturgy and a book of prayer, and if the spirit which animated them be accepted as the motive of Franklin's life, it indicates the large purpose of his mind to "attain perfection in morals." The whole effort is of a piece with his notion of education; that man by self-application could attain through the results of personal experiment perfection in almost any art.

Two years later, in his "Rules for a Club Established for Mutual Improvement," (the celebrated Junto rules), he applied his principle of self education by cöoperating with kindred spirits; took the first steps toward the characteristic acts of his life, the establishment of useful relations with his fellowmen. The use which he made of the Junto, of which we have already spoken, indicates the large value which he set upon such an enterprise. It would be untrue to say that Franklin was the founder of all the debating clubs in America, but it is not untrue that he was the founder of the most useful debating club which ever existed in this country, for the living influence of the Junto¹ exists to this day, and its usefulness to the country is suggested by the influence of the Library Company of Philadelphia at the present time.

Franklin applied the famous maxim of Horace that use is the law of speech, and extended the maxim so that it became to him the law of education; he learned to write by writing, and his numerous contribu-

NOTE.—The correspondence and miscellaneous writings of Franklin at the hands of successive editors have accumulated to ten octavo volumes, and additional letters are discovered from time to time. Each new research into the archives of the governments of France and England brings to light more Franklin letters. From the published correspondence and writings of Franklin, gathered by Sparks and Bigelow, I will venture to select passages in the writings of Franklin which record from time to time his ideas of education or which illustrate the application of those ideas. I am aware that such a selection is made at the risk of the omission of passages, which upon a larger view might appear to be pertinent, but the selection is made with the hope that others may be led to make a more thorough investigation of the subject.—EDITOR.

tions to the newspapers began the American magazine; his paraphrases of the Spectator in his brother's newspaper in Boston, under the pseudonym of "Silence Dogood," are followed by innumerable papers, in varying form, improving, we may say, until they attain perfection, to various newspapers throughout his life. The public was the subject of his story and all of his contributions are written for the pleasure and instruction of the public. The Busybody, a series of papers contributed to the Weekly Mercury, the first newspaper published in Philadelphia, are indisputably the first of Franklin's writings, though his own reference to the earlier Silence Dogood papers are evidence that they were his own. He says in the first number of the Busybody:

I have lately entertained some thought of setting up for an author myself, not out of the least vanity, I assure you, or desire of showing my parts, but purely for the good of my country.

These early papers, written in his twenty-third year, show many of the author's characteristics, both in subject and in style, and have proved the truth of Franklin's favorite idea in English composition, that by much frequent and careful writing one may attain unto a simple and direct style. Franklin may be said to be the first American newspaper man, for he was the first American writer to use simple English in brief sentences addressed directly to the public, and it may be said that he was the founder of the brief, sententious, American style in writing. The importance which Franklin attached to composition in his scheme for an English education was the result of his own experience.

In 1729 he published "A Modest Inquiry into the Nature and Necessity of a Paper Currency," and this little pamphlet marks an epoch in the history of political economy. With characteristic confession he begins his inquiry with these words:

There is no science the study of which is more useful and commendable than the knowledge of the true interest of one's country.

It would be interesting to observe more particularly the frequency with which Franklin uses the phrase "the true interest of one's country" or "the general welfare of one's country." In this "Modest Inquiry" he discusses the nature of a paper currency under several general considerations, such as the scarcity of money and a high rate of interest. That the scarcity of money in a country discourages immigration was a point of great interest to Franklin, who is ever discussing the means for encouraging an increase of population, as his theory of the general welfare was based upon his interpretation of the interests of an ever increasing and prosperous people; so he laid down the general doctrine that "a plentiful currency will encourage great numbers of laboring and handicraftsmen to come and settle in the country." He thought that "want of money in such a country as ours occasions a greater consumption of English and European goods in proportion to the number of people than there would otherwise be."° This

notion is in keeping with one of Franklin's favorite ideas, expressed by him in 1771, that—

Every manufacture in our country makes an opportunity for a market for productions within ourselves and supplies so much money to the country as must otherwise be exported to pay for the manufacture of supplies here in England; it is well known and understood that wherever a manufacture is established that employs a number of hands it raises the value of land in the neighboring country all around. It seems, therefore, the interest of our farmers and owners of land to encourage our own manufactures in preference to foreign ones.

In other words, Franklin's idea of a nation was his idea of the individual, that the nation, like the individual, should be self-supporting. This was the education in his New England home, and is characteristic of the New England idea in government.

It is interesting to trace in Franklin's writings as early as 1729 this plain intimation of the means for the true prosperity of America, that traders, artificers, laborers, and manufacturers in America should produce the goods in America and for America. It is in this paper on currency that Franklin lays down the fundamental notion in American economics that labor is the measure and creator of wealth:

For many ages [he says] those parts of the world which are engaged in commerce have fixed upon gold and silver as the chief and most proper materials for this medium (that is, money properly called a medium of exchange), they being in themselves valuable metals for their fineness, beauty, and scarcity. By these, particularly by silver, it has been usual to value all things else. But as silver itself is of no certain permanent value, being worth more or less according to its scarcity or plenty, therefore it seems requisite to fix upon something else more proper to be made a measure of value, and this I take to be labor.¹ By labor may the value of silver be measured as well as other things. As, suppose one man employed to raise corn while another is digging and refining silver. At the year's end, or at any other period of time, the complete produce of corn and that of silver are the natural price of each other; and if one be 20 bushels and the other 20 ounces, then an ounce of that silver is worth the labor of raising a bushel of that corn. * * * Thus the riches of a country are to be valued by the quantity of labor its inhabitants are able to purchase, and not by the quantity of silver and gold they possess, which will purchase more or less labor, and therefore is more or less valuable, as is said before, according to its scarcity or plenty.

This doctrine of labor stated in 1729 anticipated the *Wealth of Nations* forty-six years, and justly may lay claim to priority in the foundation of the industrial basis of modern political economy. He applied his doctrine as it affected the currency, by affirming that "money as bullion or as land is valuable by so much labor as it costs to procure that bullion or land. Money as a currency has an additional value by so much time and labor as it saves in the exchange of commodities." The effect of this paper in Pennsylvania was the issue of a paper currency. Franklin, mindful of his rule for humility and modesty, concluded the essay by saying:

As this essay is wrote and published in haste and the subject in itself intricate, I hope I shall be censured with candor if, for want of time carefully to revise what I

¹ This idea is elaborated in "*The Wealth of Nations*," Book I. See also J. S. Mills's "*Principles of Political Economy*," Book I.

have written, in some places I should appear to have expressed myself too obscurely and in others am liable to objections I did not foresee. I sincerely desire to be acquainted with the truth, and on that account shall think myself obliged to any one who will take the pains to show me or the public where I am mistaken in my conclusions.

His fondness for dialogues had led him to prescribe the composition of them in his scheme for an English school and is illustrated throughout his writings by his own dialogues on a great variety of subjects.

Franklin was fond of the theatre; action, expression, relieved the tedium of mere writing, and it would not be a matter of surprise that, had Franklin possessed the leisure, he should have written a play. The dialogue as a style in composition is much out of fashion in our time, but it was much in vogue in the eighteenth century, and Franklin was a master of it. Many will remember the dialogues which formed selections in the old readers in our schools; they will remember speaking day, when these dialogues were mouthed from the stage, and some wholesome lesson in politics or morality was given to the audience. Some of the most celebrated dialogues found in those readers were written by Franklin himself, as the celebrated dialogue between Franklin and the gout.

His utilitarian ideas appeared throughout his writings; in the *Pennsylvania Gazette* of October 30, 1735, he contributes a paper on the usefulness of mathematics. His own course in arithmetic and geometry will be remembered, and it will also be remembered that Franklin never made extensive studies in mathematics or extensive use of them; so that his paper on the usefulness of mathematics was based upon their commercial value. It was because—

That no business, commerce, trade, or employment whatsoever, even from the merchant to the shopkeeper, etc., can be managed and carried on without the assistance of numbers; for by these the trader computes the value of all sorts of goods that he dealeth in, does his business with ease and certainty, and informs himself how matters stand at any time with respect to men, money, or merchandise, to profit and loss, whether he goes forward or backward, grows richer or poorer.

We should not forget that in 1735 there were no common schools or common facilities for the education of the poor, and that the occasion for self-education was even greater than at present. Illiteracy was more prevalent, and the means for acquiring a knowledge of the rudiments of an English education depended almost wholly upon the activity of the individual. Now, in the days when public education is a part of modern life, Franklin's appeal for self-education loses much of its original force. The explanation of his enormous influence in America is that he spoke to a people who were lacking the very facilities which he showed were within reach of any enterprising person. Franklin was an American educator before there were American schools.

Throughout his paper on mathematics he makes no argument for the study of mathematics as a science; it is for its utility in mechanics, in navigation, in surveying, in engineering, and in the computation of

time and its divisions; its utility as a method of strengthening the mind, of securing the capacity for exact reasoning, of discerning truth from falsehood, and he concludes his argument with a quotation from Plato, characteristic of his own notions of life:

DEAR FRIEND: You see, then, that mathematics are necessary, because by the exactness of the method we get a habit of using our minds to the best advantage.

At thirty years of age he writes his first paper on government. It is of interest because of his subsequent influence in international politics, and particularly in the formation of the constitutions of Pennsylvania of 1776 and 1789, and in the making of the national constitution in 1787. His paper on government, written forty years before the first constitution of an American commonwealth was written, contains the germs of all American constitutions. Government is "created by and for the good of the whole" and "should be made liable to the inspection and animadversion of the whole;" "the sovereignty is in the people;" and he concludes with the maxim, "*Vox Dei est populi vox.*" With this qualification that "this is universally true while they remain in their proper sphere, unbiassed by faction, undeluded by the tricks of designing men."

We shall see later how this same idea occurs to him in his final speech to the Convention of 1787. It is in this paper on government that he anticipates a thought in the Declaration of Independence that "the civil privileges of the American people are not a gift bestowed upon us by other men, but a right that belongs to us by the laws of God and nature."¹

He based his idea of government upon his interpretation of the public good and asserts the foundation of government to be on the common rights of mankind. It is interesting as a suggestion of his subsequent course in politics.

Perhaps no paper by Franklin has been so widely read as his *Way to Wealth*;² the great number of editions of this paper, written in 1736, indicates its widespread influence. One paper, addressed to the "Courteous Reader," assumes to be taken from the proverbs of an old almanac entitled "*Poor Richard Improved.*" Probably this paper reflects Franklin's mind in its every day economy more perfectly than any other he ever wrote. It is an epitome of homely experiences told in the style of which he was then master, and addressed to the public, whom he always had in mind. It is a series of maxims skilfully strung together illustrative of Franklin's favorite notion that industry,

¹Compare the opening paragraph of the Declaration of Independence: "When in the course of human events it becomes necessary for one people to dissolve the political bands which have connected them with another, and to assume among the powers of the earth the separate and equal station to which the laws of nature and of nature's God entitle them, a decent respect to the opinions of mankind requires that they should declare the causes which impel them to the separation.

²"The Sayings of Poor Richard;" The Prefaces, Proverbs, and Poems of Benjamin Franklin. Collected and edited by Paul Leicester Ford, form one of the "Knickerbocker Nuggett" series. G. P. Putnam's Sons. "The Way to Wealth" is printed in McMaster's "Franklin."

economy, and virtue were the means for attaining perfection in this life. Portions of the paper have been printed in the reading books so frequently that it has become one of the best known of American writings. It is perhaps safe to say that in this single article Franklin contributed to the education of his countrymen in economy, as no other American has ever contributed.

Between 1736 and 1750 Franklin contributed voluminously to the newspaper, ever writing upon some useful project. It was in 1749 that he made application of his utilitarian doctrines in his conception of the identity of electricity and lightning, and began that train of thought which ended three years later in his famous experiment with the kite. His conception of the identity of electricity and lightning led to his invention of the lightning rod. Franklin never covered his discoveries by patent, believing that, as he had received much from mankind, he should contribute as freely as possible himself to the welfare of the world. It is during the next twelve years that Franklin won his fame as an electrician, obtaining his knowledge by simple experimentation and deducing conclusions of wide comprehension. He was a born scientist; his own experience as an experimenter led him to emphasize experiment in education, although in his *Proposals for the Education of Youth in Pennsylvania* he does not emphasize laboratory work as at first thought one might have expected from him. We have already referred to this.

Franklin made no effort to defend his own scientific fame, but left his fame to the considerate judgment of mankind. This was characteristic of all his work. He judged himself as he judged others—by the usefulness of his life to mankind. He strictly applied his utilitarian doctrines to himself. It is to be noticed in the numerous letters to Peter Collinson and others concerning his electrical experiments that his ideas followed the experiment rather than anticipated it. He kept close to phenomena and showed no haste to experiment merely for the sake of experiment. All his experiments were for utilitarian purposes.

In his "Advice to a Young Tradesman," written in 1748, he applies some of the notions already expressed in his "Way to Wealth," and he signs himself "An Old Tradesman." His frequent papers upon money-getting have misled some of his critics, who have thought that his whole scheme was the penny-wise pound-foolish policy, and that his sole purpose in life was to accumulate wealth. It seems to us, on the contrary, that Franklin illustrates in his own life the opposite policy, for having accumulated a fortune before he was fifty—a very unusual thing to do in the American Colonies—he was enabled to utilize his time for the benefit of the public. It would seem rather that his scheme of life was to win wealth in order to obtain time for self-improvement. He would have all men accumulate sufficient wealth to enable them to make innumerable experiments in virtue and natural philosophy, by means of which the general welfare may be promoted.

This is illustrated in his letter to George Whitefield, July 6, 1749, in which he says:

I am glad to hear that you have frequent opportunities of preaching among the great. If you can gain them to a good and exemplary life wonderful changes will follow in the manner of the lower ranks, for *ad exemplum regis*, etc. On this principle Confucius, the famous Eastern reformer, proceeded. When he saw his country sunk in vice, and wickedness of all kinds triumphant, he applied himself first to the grandees, and having by his doctrine won them to the cause of virtue the commons followed in multitudes. The mode has a wonderful influence on mankind, and there are numbers who perhaps fear less the being in hell than out of the fashion. Our most western reformatations began with the ignorant mob, and when numbers of them were gained interest and party views drew in the wise and great. Where both methods can be used the reformatations are likely to be more speedy. O, that some method could be found to make them lasting! He who discovers that will, in my opinion, deserve more, ten thousand times, than the inventor of the longitude.

Franklin was a believer in the force of example, and his belief was based upon his own experience in self-education. Probably no American has illustrated the *ad exemplum regis* like Franklin. His life has been the pattern for thousands, and in innumerable stories, essays, sermons, and speeches he has been held up as the example to American youth. In his own scheme for the education of children he emphasizes the value of the study of history and biographies because of the examples which would be set before the minds of youth. Posterity has treated Franklin gently, and perhaps no better illustration of Franklin's influence can be cited than Auerbach's "Villa on the Rhine," in which German story Franklin is the happy example for others to follow.

In a letter to his mother in his forty-third year he says of himself:

For my own part at present I pass my time agreeably enough. I enjoy through mercy a tolerable share of health, I read a great deal, write a little, do a little business for myself and now and then for others, retire when I can, and go into company when I please. So the years roll on, and the last will come, when I would rather have it said, "He lived usefully," than "He died rich."

At the time of his services in founding the University of Pennsylvania he had occasion to write to Dr. Samuel Johnson, first president of King's College, now Columbia College, to whom the provostship of the new university had been offered.

In his letter to Dr. Johnson, Franklin says:

I think with you, that nothing is of more importance for the public weal than to form and train up youth in wisdom and virtue. Wise and good men are, in my opinion, the strength of the state, much more so than riches or armies, which, under the management of ignorance and wickedness often draw on destruction, instead of providing for the safety of the people. And though the culture bestowed on many should be successful only with a few, yet the influence of those few and the service in their power may be very great. Even a single woman, that was wise, by her wisdom saved the city.

I think, also, that general virtue is more probably to be expected and obtained from the education of youth than from the exhortation of adult persons, bad habits and vices of the mind being, like the diseases of the body, more easily prevented than cured.

I think, moreover, that talents for the education of youth are the gift of God, and

that he on whom they are bestowed, whenever a way is open for the use of them, is as strongly called as if he heard a voice from heaven, nothing more surely pointing out duty in a public service than the ability and opportunity of performing it.

Dr. Johnson declined the provostship and Dr. William Smith was chosen.

American education was begun by the churches, and the higher institutions of learning nearly all originated with the ecclesiastical bodies, and most of them are still under their control. The University of Pennsylvania was, through the influence of Franklin, perhaps the first to arise without formal connection with the churches. The colleges and academies of the New England States and of districts supplied from New England were chiefly modeled after Harvard, and nearly all drew their teachers from these mother institutions and their daughters. Those of the Middle and many of the Western States may commonly be traced to the educational efforts of the Presbyterian clergy from the north of Ireland and from Scotland. The Puritan and Presbyterian congregations have been the chief agencies in our higher educational system, and in both cases the interest and the mode was ecclesiastical. Religion, it would appear, was the only force at work in American society which at that time was strong enough to overcome the American passion for money making, to insist on the excellence of a liberal education, and thus to cherish a love of learning and of science until it grew strong enough to stand alone. Only in our own days have institutions of the same character been endowed in a few places by the State governments.¹

In founding the university it was not associated with any particular church, but it sought to be at peace with them all. Franklin had to contend with the prejudices of his times. The history of the University of Pennsylvania during the eighteenth century and a great part of the nineteenth is characterized by this separation of academic from ecclesiastical interests.² The university never had a theological school. Its faculties, "as strongly called as if they heard a voice from heaven," have been gathered from all sects, and the whole character of the institution has been free from ecclesiastical bias. Without doubt, as Prof. Thompson intimates, this condition of the university for so many years explains the absence of that western influence so characteristic of Harvard and of Yale. It is true that the university, having established the first medical school in America, was the parent of all the medical schools of the West, but it was the young clergymen and schoolmasters freshly graduated from Harvard or Yale who fixed public opinion in the Northwest Territory, and towards the South, who laid the foundations of schools, and who began newspapers in the Ohio valley and imparted to the States west of the original thirteen much of their original zeal for education.

But Franklin was wise in his generation, and his farsightedness is now evident. Ecclesiasticism has given place to at least neutrality in the great American universities, but we must not forget that during the half century that followed the American revolution, when the West

¹ Elements of Political Economy, page 372.

² See Mr. Stewart's paper on the history of the university, *infra*.

was receiving its immigrants from the Eastern States, the vast ecclesiastical influence of New England carried with it the influence of Harvard and of Yale. If Franklin had been a devout churchman and had identified the University of Pennsylvania with a powerful ecclesiastical body, without doubt the influence of the University of Pennsylvania throughout the West would have been greater during the first half of the present century.¹ Now, however, we have caught up with Franklin's idea and have seen great universities established in the last 30 years as free from ecclesiastical association as was the University of Pennsylvania in 1749 and as it is now. It is an interesting subject, which we hope some one may be pleased to pursue, to trace the influence of the church upon the educational institutions of America and show the causes which have led at least to the foundation of institutions of learning upon a purely academic basis. It is interesting, indeed, that the first institution so founded was Girard College, and this institution is in perfect keeping with Franklin's ideas on education. We shall have occasion to refer to this phase of Franklin's influence in our brief account of Girard College.

* The letter to Dr. Johnson is of particular interest to the teaching profession because it went far to correct the notion prevalent in the eighteenth century, and not wholly dead yet, that talents for the education of youth are not a gift of God. It was strange doctrine to Puritan ears that a teacher was as "strongly called as if he had heard a voice from Heaven."

In Franklin's *Observations Concerning the Increase of Mankind and the Peopling of Countries*, written in 1751, he attempted to solve another problem in economics. He was the first to point out that population increases more rapidly in America than in Europe, and that this was due to the ease and convenience of supporting a family in America incident to the demand for labor and the abundance and the cheapness of land. The population of America must "at least be doubled every twenty years," but notwithstanding this increase, he says:

So vast is the territory of North America that it will require many ages to settle it fully, and until it is fully settled labor will never be cheap here, where no man continues long a laborer for others, but gets a plantation of his own, and no man continues a journeyman to a trade, but goes among those new settlers and sets up for himself, etc.

In proportion to the increase of the colonies there had been a vast demand for British manufactures, making a "glorious market wholly in the power of Britain; indeed, foreigners can not interfere. It will increase in a short time even beyond her power of supplying, though her whole trade should be to her colonies; therefore Britain should not too much restrain manufactures in her colonies."

¹The distribution of the matriculates in the University of Pennsylvania, 1740-1891, is shown in the tables of attendance *infra*, showing that the university is strengthening its influence in all parts of the world.

This good advice was wholly lost, though it was given twenty-five years before the Declaration of Independence. It is in these Observations that Franklin applied his ideas of labor to slavery:

It is an ill-grounded opinion that by the labor of slaves America may possibly vie in cheapness of manufactures with Britain. Labor of slaves can never be so cheap here as the labor of workingmen is in Britain. * * * Why, then, will Americans purchase slaves? Because slaves may be kept as long as a man pleases, or has occasion for their labor, while hired men are continually leaving their masters (even in the midst of business) and setting up for themselves.

This was Franklin's first discussion of the slave question, to which he gave earnest attention to the close of his life, ever advocating the abolition of slavery.

The principal idea of the paper was the future of the English race, and he thought that were earth "emptied of other inhabitants it might, in a few ages, be replenished from one nation only, as, for instance, with Englishmen;" and he then entered upon one of his favorite diversions, computing the population of North America:

Thus there are supposed to be now upwards of 1,000,000 English souls in North America, though it is thought scarce 80,000 have been brought over sea, and yet perhaps there is not one the fewer in Britain, but rather many more, on account of the employment the colonies afford to the manufactures at home. This million doubling, suppose, but once in twenty-five years will, in another century, be more than the people of England, and the greatest number of Englishmen will be on this side the water.

It has been pointed out that it is a curious fact that this tract of Franklin's suggested the celebrated essay on population by Malthus. The sentence, "This million doubling, suppose, but once in twenty-five years will, in another century, be more than the people of England," seems to have suggested to Malthus that population was destined to outrun the means of subsistence, as an arithmetical ratio falls behind a geometrical. Malthus published his essay in 1820. William Godwin wrote a reply to Malthus, having first attempted to break down Franklin's statement.¹

Dr. Franklin [Godwin says] is in this case particularly the object of our attention, because he was the first man who started the idea of the people of America being multiplied by procreation so as to double every twenty-five years. Dr. Franklin, born in Boston, was eminently an American patriot, and the paper from which these extracts are taken was expressly written to exalt the importance and glory of his country.

Franklin may thus be regarded as the first to call attention in the economic world to the ratio between the increase of population and the means of its subsistence, in the effort to determine which doctrine the political economists have ever since been engaged.

That Franklin should have first formulated the doctrine that labor is the wealth producer, anticipating Adam Smith, and should have

¹ See Bigelow, Vol. II, p. 232, note.

first suggested the law of the increase of population, which anticipated Malthus, places him among the great economists of the world.

A year after his letter to Dr. Johnson, in a letter to Jared Eliot on the 12th of September, Franklin refers to the academy in Philadelphia, later the University of Pennsylvania:

Our academy flourishes beyond expectation. We have now above 100 scholars, and the number is daily increasing. We have excellent masters at present, and as we give pretty good salaries, I hope we shall always be able to procure such. We pay—

The rector, who teaches Latin and Greek.....	£200
The English master	150
The mathematical professor	125
Three assistant tutors (each £60)	180
Total per annum	655

It will be noticed that in these items the pay of the English master was as great as that of any of the instructors. Subsequent changes in the course of study in the academy led to Franklin's expostulation against lowering the plane of the English instruction. His *Observations Relative to the Intentions of the Original Founders of the Academy in Philadelphia*, written thirty-eight years later, are the history of these changes and Franklin's protest.²

Two years later, on the 19th of April, Franklin wrote to the Rev. William Smith, appointed provost of the academy in 1754, and filling that office as head of the academy and of the college successfully for a period of thirty-seven years, until the University was created in its second charter of 1791.³ Franklin's letter to Dr. Smith is as follows:

PHILADELPHIA, April 19, 1753.

SIR: I received your favor of the 11th instant, with your new piece on education,⁴ which I shall carefully peruse and give you my sentiments of it, as you desire, by next post.

I believe the young gentlemen, your pupils, may be entertained and instructed here in mathematics and philosophy to satisfaction. Mr. Allison,⁵ who was educated at Glasgow, has been long accustomed to teach the latter, and Mr. Grew⁶ the former, and I think that their pupils make great progress; Mr. Allison has the care of the Latin and Greek school, but as he has now three good assistants,⁶ he can very well afford some hours every day for the instruction of those who are engaged in higher studies. The mathematical school is pretty well furnished with instruments. The English library is a good one, and we have, belonging to it, a middling apparatus

¹ See *Observations Relative to the Intentions of the Original Founders, etc.*, *supra*.

² For much valuable information concerning the academy, the old college, and the inception of the University, see Wood's *History of the University* in Vol. III of the *Memoirs of the Historical Society of Pennsylvania*.

³ A general idea of the College of Mirania. (Stuber.)

⁴ The Rev. Francis Allison, afterwards Vice-Provost of the College in Philadelphia. (Stuber.)

⁵ Theophilus Grew, afterwards Professor of Mathematics in the college. (Stuber.)

⁶ Those assistants were at that time Charles Thompson, afterwards Secretary of Congress; Paul Jackson, and Jacob Duche. (Stuber. Bigelow, Vol. II, p. 288.)

for experimental philosophy, and propose speedily to complete it. The Loganian Library, one of the best collections in America, is shortly to be opened, so that neither books nor instruments will be wanting; and as we are determined always to give good salaries, we have reason to believe we may have always an opportunity of choosing good masters; upon which, indeed, the success of the whole depends. We are obliged to you for your kind offers in this respect, and when you are settled in England we may occasionally make use of your friendship and judgment.

If it suits your convenience to visit Philadelphia before your return to Europe, I shall be extremely glad to see and converse with you here, as well as to correspond with you after your settlement in England, for an acquaintance and communication with men of learning, virtue, and public spirit is one of my greatest enjoyments.

I do not know whether you ever happened to see the first proposals I made for erecting this academy. I send them inclosed. They had, however imperfect, the desired success, being followed by a subscription of four thousand pounds towards carrying them into execution. As we are fond of receiving advice and are daily improving by experience, I am in the hopes we shall, in a few years, see a perfect institution.

I am, very respectfully, etc.

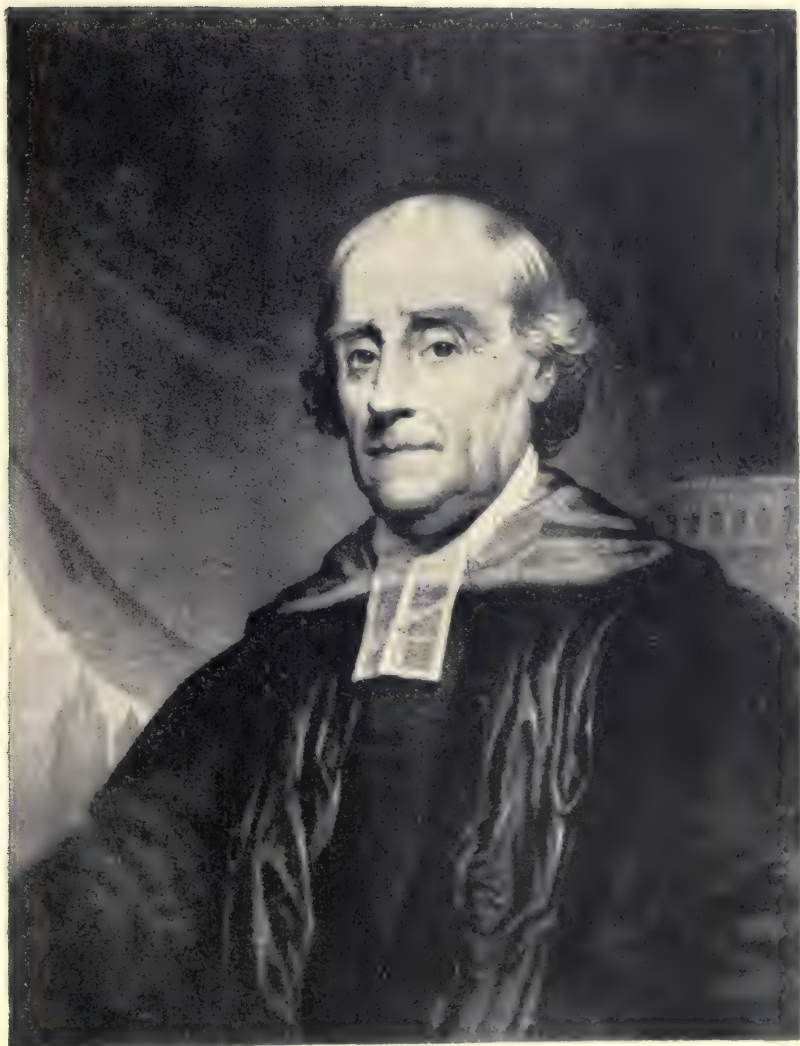
B. FRANKLIN.

Franklin was in sympathy with Dr. Smith's ideas in education. They were far in advance of the prevailing sentiment of the times and are substantially embodied in the four years' course prevailing at the present time. Prof. Lamberton has shown at length the philosophical character of Dr. Smith's educational ideas, and that the University of Pennsylvania was the first American institution to adopt the curriculum common now throughout the country.¹ Much has been said of Franklin's relations to Dr. Smith, and there is a diversity of sentiment concerning them. It seems upon consideration of the evidence that Dr. Smith leaned to the classical studies, while Franklin preferred the English branches. This may possibly be explained by the difference in the education of Franklin and Smith. Dr. Franklin would have all young men trained as he had trained himself; Dr. Smith, a fine classical scholar, would place Latin and Greek above the English language in the college. To these fundamental differences between them was added the disputes growing out of the relations of the academy and the college to the Commonwealth of Pennsylvania, and the contentions following the war of the Revolution. The college was likely to be destroyed amidst these serious commotions.²

In 1754 Franklin drew his plan of union for the colonies, known as the Albany Plan. It illustrates his love of compromise, and the scheme as first drawn by Franklin is, "Short Hints towards a Scheme for

¹See Prof. Lamberton's article on the Department of Arts in the University of Pennsylvania.

²For a detailed account of the relations between Franklin and Smith and between the college and the legislature, see, *infra*, the Historical Sketch of the University, by John L. Stewart, Ph. D.; The University in its Relations to the State of Pennsylvania, by the Hon. Samuel W. Pennypacker, LL. D.; The Relations of the University and the City, by J. G. Rosengarten, A. M.; The Provosts and Vice-Provosts, by Hon. Henry Reed, A. M.; The Department of Arts, by Prof. William Lamberton, A. M.



WILLIAM SMITH, D. D., THE FIRST PROVOST OF THE UNIVERSITY OF PENNSYLVANIA.
1755-1779.

uniting the Northern Colonies." While the commissioners from the colonies, who assembled at Albany, met for the ostensible purpose of discussing Indian affairs, the subject of a plan of union, the uppermost thought in Franklin's mind, received their attention. It is, as proposed by Franklin, according to the representative idea of government, a governor-general appointed by the King, having a salary from the Crown and a veto on the acts of the grand council, to be chosen by the assembly of one member from each of the smaller colonies and two or more from each of the larger. It was an effort to establish for the colonies a government similar to that now existing in Canada. Franklin says of the Albany Plan:

The assemblies all thought there was too much prerogative and in England it was thought to have too much of the democratic, and therefore the plan was not adopted.

In 1755 his experiments in killing fowls by electricity led him to record: "Too great a charge might indeed kill a man. * * * It would certainly, as you observe, be the easiest of all deaths," anticipating modern electrocution.

His utilitarian philosophy is illustrated in his letter to George Whitefield of July 2, 1756:

Life, like a dramatic piece, should not only be conducted with regularity, but, methinks, it should finish handsomely. Being now in the last act, I begin to cast about for something fit to end with; or, if mine be more properly compared to an epigram, as some of its lines are but barely tolerable, I am very desirous of concluding with a bright point. In such an enterprise I could spend the remainder of life with pleasure, and I firmly believe God would bless us with success if we undertook it with a sincere regard to His honor, the service of our gracious King, and (which is the same thing) the public good.

It is in this letter that he thanks Whitefield for his "generous benefactions to the German schools. They go on pretty well, and will do better when Mr. Smith,¹ who has at present the principal charge of them, shall learn to mind party writing and party politics less and his proper business more, which, I hope, time will bring about."

Franklin's love of a comfortable ancestry is illustrated in his letter to his wife from London the 6th of September, 1758, in which he gives an account of his visit to Huntingdonshire, the ancient home of his family. He is there pleased to record of his ancestors that the women were smart and sensible; that the men became wealthy, left off business, and lived comfortably; and, as was characteristic of himself, others were clever, "vastly content with their situation, and very cheerful, and another a leading man in all county affairs and much employed in public business"—all of which shows Franklin's ideal of men and women.

¹The ill feeling between Smith and Franklin already referred to was intensified by the heat of local politics, but it seems that the contention between them gradually ceased, and so completely that Dr. Smith accepted the invitation to pronounce the eulogy upon Franklin at the time of his death.

In 1760, in his letter of May 3 to Lord Kames, he acknowledges the receipt of the Principles of Equity, "which," says Franklin, "will be of more service to the colony judges, as few of them have been bred to the law," and he therefore sent his copy to a particular friend in Philadelphia, one of the judges of the Supreme Court in Pennsylvania, and to Rev. William Smith, afterwards Provost of the University. It is in this letter that he outlines "a little work for the benefit of youth," to be called the Art of Virtue:

Most people have naturally some virtues, but none have naturally all the virtues. To acquire those that are wanting, and secure what we acquire as well as those we have naturally, is as properly an art as painting, navigation, or architecture. If a man would become a painter, navigator, or architect, it is not enough that he is advised to be one; that he is convinced by the arguments of his adviser; that it would be for his advantage to be one, and that he resolves to be one, but he must also be taught the principles of the art, be shown all the methods of working, and how to acquire the habits of using properly all the instruments; and thus regularly and gradually he arrives by practice at some perfection in the art. If he does not proceed thus he is apt to meet with difficulties that discourage him and make him drop the pursuit.

He would have youth become virtuous as he would have them become "tolerable English writers," by practice, and his theory occurs in his writings again and again.

The limitations on this article prevent me from doing more than to refer to some of Franklin's ideas concerning the future of America, but one of great moment deserves passing attention; his firm belief that Canada should share the fate of the thirteen colonies and form with them a united America. This belief of his is outlined in his pamphlet entitled, "The Interest of Great Britain with regard to our Colonies and the Aquisition of Canada and Guadaloupe," written in 1760. It seems strange to us that some English statesmen should have considered Guadaloupe as more valuable to the British Empire than Canada; Franklin, however, prevailed and Canada was retained. Had his views prevailed at the time of the treaty of peace in 1783, Canada would now be a part of the United States.

In the same year, September 27, addressing David Hume from Coventry, he says, referring to a pamphlet on the Constitution and Government of Pennsylvania, long attributed to Franklin, but probably brought out by his patronage though not written by him:

I am not a little pleased to hear of your change of sentiment in some particulars relating to America, because I think it of importance to our general welfare that the people of this nation should have right notions of us, and I know no one that has it more in his power to rectify their notions than Mr. Hume. I have lately read with great pleasure, as I do everything of yours, the excellent essay on the Jealousy of Commerce.¹ I think it can not but have a good effect in promoting a certain interest

Essay on "The Jealousy of Trade," No. XXVIII, in Hume's Collected Works; Nos. XXV, XXVI, XXVII, XXIX, XXX, and XXXI, on Money, Interest, Trade, Taxes, and Public Credit, are interesting in relation to Franklin's notions on those subjects.

but little thought of by selfish man and scarcely ever mentioned, so that we hardly have a name for it—I mean the interest of humanity, or common good of mankind. But I hope, particularly from that essay, an abatement of the jealousy that reigns here of the markets of the colonies, at least so far as such abatement may be reasonable.

This is one of the earliest and perhaps the first use of the phrase “the general welfare,” as relating to America, a phrase destined to receive a constantly more extended meaning and to become fixed in the public mind by insertion in the Preamble of the Constitution of the United States. Probably no philosopher of the eighteenth century contributed so much to the definition of the “general welfare” as David Hume. To his writings may be traced many of the causes of both the American and the French revolutions, and Franklin’s relations to him, their correspondence, and the influence which each had on the other are of great interest. If Hume precipitated the French revolution, Franklin may be said to have hastened the independence of the United States. As has been already said, Franklin educated the colonies to become independent States.

In November, 1761, he thanks Lord Kames for a copy of his Introduction to the Art of Thinking, and inquires after the Elements of Criticism then in preparation. He adds:

I promise myself no small satisfaction in perusing that work also. By the first you sow thick in the young mind the seeds of common sense concerning moral conduct, which, as they grow and are transplanted into life, must greatly adorn the character and habits of the person. Permit me to say that I think I never saw more solid useful matter contained in so small a compass, and yet the method and expression so clear that the brevity occasions no obscurity. In the other you will, by alluring youth to the practice of learning, strengthen their judgment, improve and enlarge their understanding, and increase their abilities of being useful. To produce the number of valuable men necessary in a nation for its prosperity, there is much more hope through schemes of early institution than from reformation; and as the power of a single man to do national service in particular situations of influence is often eminently great, a writer can hardly conceive the good he may be doing when engaged in works of this kind. I can not therefore but wish you would publish it as soon as your other important employments will permit you to give it a finishing hand. With these sentiments you will not doubt my being serious in the intention of finishing my Art of Virtue. It is not a mere ideal work. I planned it first in 1732. I have from time to time made, and caused to be made, experiments of the method with success. The materials have been growing ever since; the form only is now to be given it, in which I purpose employing my first leisure after my return to my mother country.

Evidently Franklin considers his proposed Art of Virtue as the *magnum opus* of his life. Whenever he receives a work from a distinguished author he is quite likely to refer to this proposed work of his as not an ideal or theoretical thing but one of great practical utility; somewhat conscious of his own infirmities, he thought he might atone for them by at least suggesting to others how they might improve in the Art of Virtue.

On the 10th of May, 1762, Hume, writing to Franklin from Edinburgh on a device for protecting houses from stroke by lightning, says:

I thought it proper to convey to you these two ideas of so ingenious a man, that you might adopt them if they appear to you well founded. I am very sorry that you intend soon to leave us; I am sure America has sent us many good things, gold, silver, sugar, tobacco, indigo, etc., but you are the first philosopher, and indeed the first great man of letters for whom we are beholden to her.

This letter is evidence of the sympathy between Hume and Franklin,¹ who in reply nine days later regretted leaving a country "in which I have received so much friendship, and friends whose conversation has been so agreeable and so improving to me."

Public events soon withdrew Franklin from his scientific studies and he was concerned with the measures of Parliament. In his letter to Charles Thompson of July 11, 1765, he says:

Depend upon it, my good neighbor, I took every step in my power to prevent the passing of the Stamp Act. Nobody could be more concerned and interested than myself to oppose it sincerely and heartily, but the tide was too strong against us. The nation was provoked by American claims to independence, *i. e.*, independent of local taxation by Parliament, and all parties joined in resolving by this act to settle the point. That we could not do. But since it is down, my friend, and it may be long before it rises again, let us make as good a night of it as we can; we may still light candles; frugality and industry will go a great way towards indemnifying us. Idleness and pride tax with a heavier hand than kings; if we can get rid of the former, we may easily bear the latter.

It was a favorite idea of Franklin's that many of the ills incident to bad government were less than the ills which people voluntarily suffer from idleness and pride, and he is constantly applying the formula of his moral algebra to the solution of some practical question of the times.

It was on the 3d of February, 1766, that Dr. Franklin was examined at the bar of the House of Commons; that long, severe, and exhaustive examination by friends and enemies is the clearest account which we have of the relations between England and the American colonies at that time. Franklin's practical knowledge of America, due to his experience as deputy postmaster of the colonies, and his wise observations during his official journeys in the colonies, equipped him to be the advocate of the rights of the Americans. For the first time the British Parliament heard a truthful account of America. I can only refer to this examination as an illustration of all that we have said of Franklin's method of conveying knowledge. This examination was the most important Socratic dialogue in which Franklin ever engaged. He carefully distinguishes between the right of the colonial assemblies to levy local or internal taxes and the right of Parliament to levy an external

¹Perhaps no better summary of Franklin can be made than Knight's remark about Hume: "Even in the sentimental days of boyhood, his estimates of men and things were based, with scarcely an exception, upon *utility*. He was essentially matter-of-fact from the first, and he remained un-ideal to the last. An acute observer, one of the keenest and cleverest of critics, he was never known to have been carried away by any fervor for what was above and beyond himself. Knight's *Life of Hume*, p. 8.

tax or a duty; he contending that there was not a single article imported into the northern colonies but what they could either do without or make themselves, that with industry and good management they could very well supply themselves with all they wanted, it would not take a long time to establish manufactures among them, and it was his opinion that before their old clothes were worn out they would have new ones of their own making. The whole examination shows that in Franklin's opinion the Americans were prepared to be self-supporting, and it is interesting as formulating the principal points which were afterwards used by Adam Smith in his *Wealth of Nations* as illustrations of his economic theories respecting new countries.

Meanwhile the influence of Hume, Voltaire, Turgot, and Quesnay and of others who had worked out in their philosophy a scheme for the regeneration of mankind, was rapidly precipitating the revolutions of 1776 in America and of 1787 in France. It will always be a matter of speculation to what extent Hume and Adam Smith and Franklin by their philosophy contributed to hastening these stupendous changes. I can only refer to them and leave to others the elaboration of this interesting subject.

Among the brilliant thinkers of the eighteenth century were a number of men now known as the physiocrats, from the general title given in 1768 to the first volume of Quesnay's collected works, published by his disciple, Dupont de Nemours. The physiocrats sought a universal exposition of the wants of man and how these wants should be met in the natural constitution and the natural order of human society. Government should be according to the nature of things; the world is governed by immutable physical and moral laws; it is for man, an intelligent and free being, to discover them and to obey them or to violate them for his own good or evil; the end assigned to the exercise of his intellectual and physical powers is the appropriation of matter for the satisfaction of his wants and the improvement of his condition, and to the general accomplishment of this task conformably to the idea of the just, which is the correlative of the idea of the useful. Man forms an idea of justice and utility, both individual and social, through the notions of duty and right which his nature reveals to him and which teach him that it is contrary to his good and the general welfare to seek his own advantage in a damage done to others. This idea entering the minds of individuals and peoples in proportion to the increase of enlightenment and the advance of civilization, they naturally produce feelings of fraternity among men and peace among peoples. The chief manifestations of justice are liberty and prosperity; that is to say, the right of each one to do that which shall in no way concern the general welfare, and to use at his pleasure the things which he possesses, the acquirement of which is conformable to the nature of things and to the general utility, since without liberty and property there would have been no civilization and a very much smaller amount of good at the

disposition of man. Liberty and property spring, then, from the nature of man, and are rights so essential that laws or agreements among men should be limited to recognizing them, to formulating them, to saving them. Governments have no mission but to protect these two rights which, with a correct understanding of things, embrace all the material and moral wants of society. To say that liberty and property are essential rights, is to say that they are in harmony with the general interest of the species; that is to say, that with them land is more fertile and the industry of man in its manifestations more productive, and the development of all his moral, intellectual, scientific, and artistic aptitudes swifter; they are in the field of the good and beautiful and just and the useful; that is to say, through them man best gathers the fruit of his own efforts and that he is not at least the victim of the arbitrary laws of his fellow men.

As the physiocrats were utilitarians,¹ Franklin, whose visit to France occurred at the time when physiocracy was in fashion, became a disciple of Quesnay. Quesnay's notion that "the happiness of the majority depends much less upon the mechanism of governmental forms than on the development of human industry, and that it is impossible to discuss politics rationally without having previously acquired a knowledge of the economy of society" was exactly after Franklin's. Numerous quotations from Franklin's works, both before and after 1768, would prove this. With Adam Smith the physiocrats combated the mercantile theory which made wealth to consist only in the precious metals, and which exaggerated the advantages of foreign commerce; they combated, also, the infatuation for the manufacturing system. Franklin's ideas of economy were founded upon an agricultural basis, for he knew America, and America was then agricultural. The theory of the physiocrats that agriculture was the true basis of all government doubtless appealed to Franklin. In his letter of July 28, 1768, to Dupont de Nemours, he acknowledges—

The most acceptable gift of your "Physiocratie" (*Origine et Progres d'une science nouvelle*), which I have read with great pleasure, and received from it a great deal of instruction. There is so much freedom from local and national prejudices and partialities, so much benevolence to mankind in general, so much goodness mixed with the wisdom in the principles of your new philosophy, that I am perfectly charmed with them and wish I could have stayed in France for some time to have studied in your school, that I might, by conversing with its founders, have made myself quite a master of that philosophy. I had, before I went into your country, seen some letters of yours to Dr. Templeman that gave me a high opinion of the doctrines you are engaged in cultivating, and of your personal talents and abilities, which made me greatly desirous of seeing you. Since I had not that good fortune, the next best thing is that which you are so good as to offer me—your correspondence—which I shall ever highly value and endeavor to cultivate with all the diligence I am capable of. I am sorry to find that that wisdom which sees the welfare of the parts in the prosperity of the whole seems yet not to be known in this country (England). * * * It is from your philosophy only that the maxims

¹ See Art. Physiocrats, by John Garnier Lalor, Vol. III.

of the contrary and more happy conduct are to be drawn, which I therefore sincerely wish may grow and increase until it becomes the governing philosophy of the human species, as it must be that of superior beings in better worlds. I take the liberty of sending you a little fragment that is somewhat tinctured by it, which on that account may be acceptable. Be so good as to present my sincere respect to that venerable apostle, Dr. Quesnay, and to the illustrious *Ami des Hommes* (of whose civilities to me at Passy I retain a grateful remembrance).

Dupont de Nemours¹ found it convenient during the French Revolution to emigrate to the United States, and on his return he assisted in negotiating the purchase of Louisiana by the United States, and, at the request of Jefferson, prepared a scheme of national education for the young Republic, which was published in 1812, and entitled "*Sur l'Education Nationale dans les Etats Unis.*"

In Dr. Adams's *Thomas Jefferson and the University of Virginia*² an interesting account is given of the survival of French influence in America, and particularly of the work of Quesnay and Dupont de Nemours and their distinguished associates in founding the Richmond Academy, and also a particular account of Dupont de Nemours's treatise on national education and the influence of that treatise at the time. I take great pleasure in referring the reader not only to this interesting effort so intimately associated with Franklin, but also to the whole of Dr. Adams's most admirable monograph.

The influence of the physiocrats on Franklin is discernible in his speeches in the Constitutional Convention of 1787, particularly in his last speech.³

Franklin's method of arriving at a conclusion is outlined in his letter to Dr. Priestley, September 19, 1772. In order to get over the uncertainty and perplexity incident to making up his mind on a subject, he says:

My way is to divide half a sheet of paper by a line into two columns, writing over the one pro and over the other con; then, during three or four days' consideration, I put down under the different heads short hints of the different motives that at different times occur to me for or against the measure. When I have thus got them all together in one view I endeavor to estimate their respective weights and where I find two (one on each side) that seem equal I strike them both out. If I find a reason pro equal to some two reasons con I strike out the three. If I judge some two reasons con equal to some three reasons pro I strike out the five; and thus proceeding I find at length where the balance lies; and if, after a day or two of further consideration, nothing new that is of importance occurs on either side I come to a

¹The descendants of this eminent man have for generations been educated at the University of Pennsylvania; the seat of the family is in Delaware.

²*Thomas Jefferson and the University of Virginia*, by Herbert B. Adams, Ph. D., United States Bureau of Education, Circular of Information No. 1, 1888, pp. 21-30, 49-54. Washington, Government Printing Office, 1888.

³For the doctrines of the physiocrats see Quesnay's *Tableau Economique*, 1758, *L'Ami des Hommes*, 6 vols., 1755-1760; Turgot's *Reflexions sur la formation et la Destruction des Richesses*. Adam Smith also has an instructive chapter on the physiocrats.

determination accordingly. And though the weight of reasons can not be taken with the precision of algebraic quantities, yet when each is thus considered separately and comparatively and the whole lies before me I think I can judge better and am less liable to make a rash step; and in fact I have found great advantage from this kind of equation in what may be called moral or prudential algebra.

This method of arriving at a conclusion could be suggested only by a man like Franklin, who based his notions upon comparison of conflicting claims, and whose powers in forming such conclusions were so great that they equipped him for a large service of diplomacy. Throughout his schemes for the education of youth he emphasizes the value of comparison as an element in education, and perhaps no more curious or pertinent illustration can be found of his fondness for this exercise than in his prudential algebra.

Franklin's sympathy with mankind and his love of books made him a prolific writer, and his numerous short articles, not wholly unlike his old models in the *Spectator*, accumulated rapidly after 1770, but it should not be imagined that these apparently easy contributions for the pleasure of his friends were not the result of great labor. The existence of several revisions of the original copy attest the labor with which the final form was reached, and some of these copies are so freely interlined as to be almost illegible. The perfection of the style of many of these bagatelles led to their introduction into the readers in our schools, and by a singular destiny Franklin contributed to the education of youth many articles such as, in his *Plan for an English School*, he advises should be read by children. Many of these short stories have become English classics.

One of the few references in Franklin's writings to civil service is found in his letter to Mr. Timothy, November 3, 1772, in which he says:

I am sorry you talk of leaving off your business with the view of getting some post (that is, public office); it is so difficult a matter to obtain anything of the kind that I think to leave a good trade in hopes of an office is quitting a certainty for an uncertainty and losing substance for shadow. I have known so many here (London) dangle and solicit years for places until they were reduced to the lowest poverty and distress, that I can not but pity a man who begins to turn his thoughts that way. The proverb says, "He who has a trade has a feast of profit and honor because he does not hold it during another man's pleasure and it affords him honest subsistence with independence." I hope, therefore, you will alter your mind and go on with your business.

This advice about office-seeking has been lost upon many Americans.

Franklin's respect for the trades is well known; he never forgot that he had been an apprentice, and always found satisfaction in describing himself as a printer. His utilitarian ideas found illustration in the improvement of common utensils and instruments in daily use. For instance, in his letter of April 11, 1773, to William Dean, he knows of nothing new worth communicating from London—

Unless, perhaps, the new art of making carriage wheels; the felloes of one piece bent into a circle and surrounded with a hoop of iron, the whole very light and strong, there being no crossgrain in the wood; it is also a great saving of timber.

The wood is first steamed in the vapor from boiling water and then bent by a forcible machine. I have seen pieces of wood so bent of 6 inches wide and $3\frac{1}{4}$ thick into a circle of 4 feet diameter. These for duration can only be exceeded by your own iron wheels; pray, have you completed that ingenious invention?

In this letter, also, he says:

I have completed my stove, in which the smoke of the coal is all turned into flame and operates as fuel in heating the room. I have used it all this winter and find it answers even beyond my expectations. I propose to print a little description of its use and construction and shall send you a copy.

All of this he did soon after. He was the first to devise the smoke-consuming stove, the principle of which has been largely applied in the construction of railroad locomotives, in city factories, and should be much more widely applied.

"The doctrines of life and death in general are yet but little understood," he writes to M. Dubourg, and proceeds to describe a toad that long contained in a stone came to life. The curious revival of the toad led Franklin to remark on an instance of common flies preserved in a manner somewhat similar:

They had been drowned in Madeira wine apparently about the time it was bottled in Virginia to be sent later to London. At the opening of one of the bottles at the house of a friend where I then was, three drowned flies fell into the first glass that was filled. Having heard it remarked that drowned flies were capable of being revived by being placed in the rays of the sun, I proposed making an experiment with these. They were, therefore, exposed to the sun upon a sieve, which had been employed to strain them out of the wine. In less than three hours two of them began by degrees to recover life. They commenced by some convulsive motions of the thighs, and at length they raised themselves upon their legs, wiped their eyes with their fore feet, beat and brushed their wings with their hind feet, and soon after began to fly, finding themselves in Old England, without knowing how they came thither. The third continued lifeless till sunset, then, losing all hopes of him, he was thrown away.

This experiment was not lost on Franklin; he adds:

I wish it were possible, from this instance, to invent a method of embalming drowned persons in such a manner that they may be recalled to life at any period however distant; for, having a very urgent desire to see and observe the state of America a hundred years hence, I should prefer to any ordinary death the being immersed in a cask of Madeira wine, with a few friends, until that time, to be then recalled to life by the solar warmth of my dear country. But since, in all probability, we live in an age too early and too near the infancy of science to hope to see such an art brought, in our time, to its perfection, I must for the present content myself with the treat, which you are so kind as to promise, of the resurrection of a fowl or a turkey cock.

In 1773 appeared his rules for reducing a great empire to a small one, presented to a late minister, as is supposed, Lord Hillsboro. In this unique article Franklin illustrated his sagacity in addressing the public in order to reach the ministry. Though the paper has lost much of its point by the lapse of time, it holds its place in the first rank of American political satires. It eventually accomplished the end for which it was written, the enlightenment of the British public.

Franklin's utilitarian ideas found illustration in the square tiles which many Americans will remember as ornamenting the chimneys in the olden time. Franklin thought that the fireplace was fit to give moral instruction. He advised an engraver in 1773 to borrow "from the bookseller's the plates that had been used in a thin folio called *Moral Virtue Delineated*, for the purpose of obtaining the pictorial illustrations." The Dutch Delft ware tiles were much used in America, "which are only, or chiefly, Scriptural histories, wretchedly scrawled. I wish to have these moral prints, which were originally taken from Horace's poetical figures, introduced on tiles, which, being about our chimneys and constantly in the eyes of children when by the fireside, might give parents an opportunity in explaining to impress moral sentiments." These notions of education might possibly make the subject of a chapter in his *Art of Virtue*.

He lost no opportunity to make experiments in politics, morality, and natural history. As an instance of his interest in experimenting to determine the effect of oil in stilling the waves in a storm, he tells us, in a letter of November 7, 1773, to Dr. Brownrig, how, in his youth, he had "smiled at Pliny's account of the practice among the seamen of his time to still the waves in a storm by pouring oil into the sea," and recollecting what he had formerly read in Pliny he resolved "to make some experiments of the effect of oil on water when I should have opportunity," and after mentioning several experiments, he records:

After this, I contrived to take with me, whenever I went into the country, a little oil in the upper hollow joint of a bamboo cane, with which I might repeat the experiment as opportunity should afford, and I find it constantly to succeed.

Another experiment of his in morality was an abridgment of the *Book of Common Prayer*, made by Lord De Lespencer with the assistance of Franklin. Franklin spent some time at the country residence of Lord De Lespencer in 1773, and doubtless wrote the preface to the abridgment. He wished to adapt the *Book of Common Prayer* to the wants of—

Many pious and devout persons, whose age or infirmity will not suffer them to remain for hours in a cold church, especially in the winter season, and of the younger sort who would probably more frequently and more cheerfully attend divine service if they were not detained so long at any one time. Also many well-disposed tradesmen, shopkeepers, artificers, and others, whose habitations are not remote from churches might come, and would more frequently, at least find time to attend divine service on other than Sundays if the prayers were reduced to a much narrower compass.

The preface continues somewhat elaborately defending the changes which have been made, but the abridgment attracted "little notice," and "the book became waste paper." The whole purpose of the abridgment was in keeping with Franklin's utilitarian ideas.

On the 21st of July, 1775, Franklin brought forward a plan for the union of the Colonies, called "*Articles of Confederation and Perpetual Union proposed in General Congress*." They were the first of the kind,

but there is no evidence from the journals or from references to the debates in Congress at the time that Franklin's articles were referred to a committee or generally considered. It was not until nearly six years had passed that similar articles¹ were adopted by the requisite number of States. The second article is of interest, as it contains the elements afterwards united in the Preamble to the National Constitution.

Art. II. The said united colonies hereby severally enter into a firm league of friendship with each other, binding on themselves and their posterity, for their common defense against their enemies; for the security of their liberties and properties; the safety of their persons and families, and their mutual and general welfare.

The articles are more like those adopted under the title of "Articles of Confederation of 1777" than the National Constitution of ten years later, but they suggest Franklin's ideas of government, the application of his utilitarian philosophy and the general democratic basis on which he would found government.

Franklin conceived that a nation is permanent; that it has the power of readjusting itself to new conditions; this is the national idea. Of this idea Franklin was the northern exponent. He anticipated Lincoln in that he would found all civil institutions upon the essential interests of the people; Franklin bore the same relation to the colonies in 1776 which Lincoln bore to the new Union in 1865; each opened a book in American history. The faith which Franklin had in the power of the people to adjust themselves to new conditions is repeatedly illustrated in his writings.

In a characteristic article, entitled "A Petition of the Left Hand to those who have the Superintendency of Education," written in 1779, Franklin made a plea for the equal training of the hands. He thought that children should be taught to use either hand with facility, and that the customary preference given to the right hand limited not only the usefulness of the left, but impeded the skill of the individual in the many accomplishments of life. He anticipated Froebel in his idea of the free industrial training of the child and in the even development of all the functions and organs of the body.

Had international law not existed prior to the time of Franklin, he would have originated a system; his practical mind sought to ameliorate the condition of mankind. In a letter from Passy, May 30, 1780, he says:

All the internal states of Europe seem at present disposed to change what they have before deemed the law of nations, to wit: That an enemy's property may be taken wherever found, and to establish the rule that free ships make free goods. This rule is itself so reasonable and of a nature to be so beneficial to mankind that I can not but wish it may become general, and I make no doubt but that the Congress will agree to it in as full an extent as France and Spain.

This doctrine that free ships make free goods was a favorite one with Franklin, and is frequently mentioned by him.

¹ See the text of the articles, Bigelow, Vol. V, p. 548.

On the 5th of June following he writes to Charles W. F. Dumas:

I approve much of the principles of the confederacy of the neutral powers, and am not only for respecting the ships as the house of a friend, though containing the goods of an enemy, but I even wish, for the sake of humanity, that the law of nations may be further improved by determining that even in time of war all those kinds of people who are employed in procuring subsistence for the species, or in exchanging the necessities or conveniences of life, which are for the common benefit of mankind, such as husbandmen on their lands, fishermen in their barks, and traders in unarmed vessels, shall be permitted to prosecute their several innocent and useful employments without interruption or molestation, and nothing taken from them, even when wanted by the enemy, but on paying a fair price for the same.¹

Franklin incorporated this idea in the last diplomatic act of his life—the treaty with Prussia—which was so highly commended by Washington.

On the 15th of May, 1781, in his letter to Samuel Cooper, expressing sentiments on the adoption of the new constitution of Massachusetts,² he again illustrates his faith in the power of the people to adjust themselves to new conditions:

It gives me great pleasure to learn that your new constitution is at length settled with so great a degree of unanimity and general satisfaction. It seems to me upon the whole an excellent one, and that if there are some parts that one might have wished a little different they are such as could not in the present state of things have been well obtained otherwise than they are, and if by experience found inconvenient will probably be changed hereafter.

He disapproved the provision in the constitution for public taxation to maintain the clergy; did not think it right to tax Quakers and others who do not approve of the New England ecclesiastical system, and advocated that abolition of religious qualifications which was effected in Massachusetts in 1820, and before the close of the first quarter of the present century had disappeared from nearly all the State constitutions. Franklin, like Jefferson, disapproved of both property and religious qualifications for the exercise of the franchise.

Franklin's utilitarian ideas appear on every page of his writings. The custom in America of planting rows of trees along our streets, which has added a touch of beauty to our towns, had the approval of Franklin, who said in a letter to Francis Hopkinson of December 24, 1782:

I own I now wish we had two rows of them in every one of our streets. The comfortable shelter they would afford us when walking, from our burning summer suns, and the greater coolness of our walls and pavements, would, I conceive, in the improved health of the inhabitants, amply compensate the loss of a house now and then by fire, if such should be the consequence; but a tree is soon felled, and as axes are at hand in every neighborhood, may be down before the engines arrive.

It is noticeable that an argument now common for the planting of trees, the additional beauty of the street, is not suggested by Franklin.

¹ John Adams' criticism on this point, p. 171.

² The constitution of 1780, the only one of the eighteenth-century State constitutions now in force was amended in 1820 to abolish religious qualifications.

It probably did not occur to him. Seldom indeed does he advocate the beautiful when the utilitarian is also an argument. He was somewhat of a Philistine in his notions, and his constant repetition of the useful and the beneficial resolves his whole scheme of education into a broad system, which, though promoting the general welfare, would be none the less strong if embellished with an element of the beautiful. To Franklin the cooling shade of the tree and the consequent improved health of the inhabitants was the chief reason for planting the trees along our streets, but we occasionally yearn in Franklin's writings for a few words that would intimate an occasional appreciation of a thing that was not merely an industrial improvement or an instrument for material comfort. Franklin was deficient in the sense of the beautiful and throughout his scheme for the education of children, and in whatsoever intimations of his ideas of education there may be scattered through his works, we can gather little that encourages the study of art for art's sake. He was fond of music and was a discriminating listener. We should not forget that the American colonies were meagerly supplied with beautiful things, that their amusements were somewhat rude, and they had few notions of the artistic in education. Franklin, too, was born in New England, and the plain, substantial comforts of his New England home always satisfied his ideals of life. As he knew nothing of the artistic in his own training and education, he made no provision for it in the education of others. We may say, then, that in the whole effort of American education to teach the beautiful in art, music, painting, and drawing we have an education which was not begun by Franklin. But in our industrial schools, our technical schools, our manual-training schools, and our means for teaching and acquiring skill in the applied arts we have the consummation of Franklin's most cherished notions in education.

From Bayne's journal we have a brief but interesting account of Franklin's conversation on a number of important matters. John Bayne, an intimate friend of Sir Samuel Rommily, visited Franklin at Passy in August, 1783. It is of this visit that Rommily wrote in his journal:

Of all the celebrated persons whom in my life I have chanced to see, Dr. Franklin, both from his appearance and his conversation, seemed to me the most remarkable,

The conversation on American politics led Dr. Franklin to express his belief in universal suffrage. He said he thought that "the all of one man was as dear to him as the all of another;" though he excluded from participation in the franchise minors, servants, and others liable to undue influence. We should not forget that at this time religious and property qualifications obtained in nearly all the American States, and the abolition of these qualifications did not come until Franklin had been dead fifty years. Franklin's love of mankind led him to advocate manhood suffrage, and he stands with the Jeffersonian school, in this respect.

In this conversation Franklin advanced a favorite notion of his—that

he inclined "to doubt of the necessity of having teachers or ministers for the express purpose of instructing the people in their religious duties," and approved of the system among the Quakers, who have no preachers, their mode of instruction encouraging all to participate in the meeting who think themselves qualified to contribute to the welfare of their neighbors.

He thought that the general peace of Europe might be secured if the powers would "refer all disputes between each other to some third person or set of men or power. Other nations, seeing the advantage of this, would gradually accede, and perhaps in one hundred and fifty or two hundred years all Europe would be included." His mind was so universal in its consideration of the wants of mankind and he was so accustomed to consider matters of international concern that he arrived at the solution of international difficulties—arbitration—generations before it was actually employed. The humane and peaceful method of arriving at a judgment in disputes between nations, such as has been witnessed in the settlement of the Alabama claims, conforms with Franklin's views expressed eighty-eight years before. This anticipation of the condition of international affairs of the future suggests again that Franklin would have contributed to the world a system of international law had none existed before his day.

Amidst the cares of public office his mind turned to the scenes of his boyhood, and there is a delightful touch of nature in his expression of his feelings concerning his native place, expressed in a letter to Samuel Mather, written at Passy, May 12, 1784:

I long much to see my native place and to lay my bones there. I left it in 1723; I visited it in 1733, 1743, 1753, 1763. In 1773 I was in England; in 1775 I had a sight of it, but could not enter it, being in the possession of the enemy. I had hoped to have been there in 1783, but could not obtain my dismission from this employment here, and now I fear I shall never have that happiness. My best wishes, however, attend my dear country: *Esto perpetua!* It is now blessed with an excellent constitution. May it last forever.

Few indeed of New England birth are there who do not feel with Franklin a strong desire at times to revisit their native place. The wish of Franklin that the constitution of his native place might be perpetual seems in process of fulfillment, for the constitution of 1780, which Franklin knew, remains the supreme law of Massachusetts.

The estimate which we have placed upon the work of Franklin is quite like that which his contemporaries placed upon that work. On the 26th of July, 1784, the Count de Campomanes, writing from Madrid, acknowledged through Mr. Camichael, a letter from Franklin and a collection of his miscellaneous writings.

All these writings [continued he] exhibit proofs of their having proceeded from a statesman endowed with foresight and vigilant for the best interests of his country, according to the political combinations and systems of government under which they were composed; and they manifest, at the same time, founded on principles and calculations carried to as high a degree of demonstration as the vicissi-

fude and inconsistency of the various systems adopted for the government of men will admit. Your views and reflections show the solidity and permanence of your principles, whether considered as applicable to the American colonies in their former condition, or in that of independent States. In both cases your efforts have been directed to the general good, without running into those extremes which are apt to lead astray weak minds in so long and arduous a contest, as we have seen in America, for the establishment of a new State, consisting of thirteen provinces under different constitutions, and, at last, united in a bond of union for the mutual benefit of each other. Nature, which you so profoundly studied, is indebted to you for investigating and explaining phenomena which wise men had not before been able to understand; and the great American philosopher, at the same time he discovers these phenomena, suggests useful methods for guarding men against their dangers.

Franklin was fond of suggesting the future greatness of America; its increasing population, its acquisition of territory, and the spread of the English language not only throughout America, but throughout the world. In a letter to William Strahan, Passy, August 19, 1784, he touches on this:

By the way, the rapid growth and extension of the English language in America must become greatly advantageous to the booksellers and holders of copyright in England. A vast audience is assembling there for English authors, ancient, present, and future, our people doubling every twenty years; and this will demand large and of course profitable impressions of your most valuable books. I would, therefore, if I possessed such rights, entail them, if such a thing be practicable, upon my posterity; for their worth will be continually augmenting.

This is a prophecy of the circulation of Macaulay, Thackeray, Dickens, Tennyson, and other writers who have found their largest audiences in America. The recent perfection of the international copyright tends to the realization of Franklin's suggestion of "entailing" such rights to the advantage of the posterity of English writers. In the same letter he says:

The subject, however, leads me to another thought, which is that you do wrong to discourage the emigration of Englishmen to America. In my piece on population I have proved, I think, that emigration does not diminish, but multiplies a nation. You will not have fewer at home for those that go abroad, and as every man who comes among us and takes up a piece of land becomes a citizen, and by our Constitution has a voice in elections and a share in the Government of the country, why should you be against acquiring by this fair means a repossession of it, and leave it to be taken by foreigners of all nations and languages, who by their numbers may drown and stifle the English, which otherwise would probably become in the course of two centuries the most extensive language in the world, the Spanish only excepted? It is a fact that the Irish emigrants and their children are now in possession of the Government of Pennsylvania by their majority in the Assembly, as well as of a great part of the territory, and I remember well the first ship that brought any of them over.

The present agitation of the question of immigration, based upon the danger to American institutions of stifling their Anglo-Saxon character, suggests how true was Franklin's anticipation. It is also true that the occupation of Central and South America by Spain made the Spanish language one of the imperial languages of the world, and that Spanish and English, a century after Franklin wrote this letter, are the two

most extensive languages in the new world. These wise judgments of Franklin were based upon intuition, rather than upon reason, for many of the elements which would enter into such a conclusion were beyond the view of Franklin. We should not forget that facilities for acquiring the almost innumerable data which lead to such conclusions were greatly limited in his time, and the comprehensive character of his mental operations becomes the more remarkable when we reflect upon the limitations under which such operations proceeded. As a case in point, we might refer to Mr. Bryce's *American Commonwealth*, a remarkable book, produced by a scholarly and sympathizing Englishman, whose intuitions equipped him to describe American institutions, but whose reasons for the character of our institutions are frequently defective. There must be in Franklin's philosophy a dependence upon the intuitions rather than a scheme for the enlargement of the reasoning powers; he observed, he felt, he knew; speculation attracted him but little, and he judged of the utilities almost wholly by intuition.

After the war it was realized by thoughtful Americans that the Articles of Confederation were defective, and that a National Constitution was necessary. I can not follow minutely the thoughts and the work of Franklin for the National Constitution, but there are several passages in his writings which illustrate his views. Writing to George Whately, from Passy, May 23, 1785, he says:

Our Constitution seems not to be well understood with you. If the Congress were a permanent body, there would be more reason in being jealous of giving it powers. But its members are chosen annually; can not be chosen more than three years successively, nor more than three years in seven; and any of them may be recalled at any time, whenever their constituents shall be dissatisfied with their conduct. They are of the people, and return again to mix with the people, having no more durable preëminence than the different grains of sand in an hourglass. Such an assembly can not easily become dangerous to liberty. They are the servants of the people, sent together to do the people's business, and promote the public welfare; their powers must be sufficient, or their duties can not be performed.

He did not value highly the mere forms of government, and his keen recognition of the essential importance of administration, rather than elaborate statements of the theory of government, is repeatedly set forth from this time on. Destined himself to participate in the making of the National Constitution, it is interesting to follow the communication of his own ideas, gained through his long and useful public life. I think I interpret him correctly when I say that he valued a useful administration of government more highly than a good form of government badly administered.¹ Perhaps Franklin displays the greatness of his practical judgment nowhere more instructively than in his appreciation of the importance of administration of government. The eighteenth century produced many eminent men who contributed to

¹See his last speech in the convention of 1787, in which he says: "I think a general government necessary for us, and there is no form of government but what may be a blessing to the people if well administered." P. 13, *supra*.

our knowledge of the theory of government, but it produced very few men who were able to set forth the principles by which government should be administered. In this respect Franklin stands almost alone, perhaps with the exception of Alexander Hamilton, quite alone. Each of these eminent men foresaw the great problem of our century, the problem of the administration of government. We no longer debate, as did the Junto a hundred and fifty years ago, the theoretical abstractions of government, but our practical affairs are administrative in their nature, and Franklin illustrates the perennial freshness of his mind and its modern character in his emphasis of the importance of the administration of affairs. He was as much a citizen of to-day as one of us.

Perhaps in further illustration of the modern character of his mind I might refer again, in passing, to his opinions regarding the inclusion of Canada with the thirteen colonies in the treaty of 1783. For many years he had advocated the united interests of the thirteen colonies, and he continued this advocacy through life. Had he not been prostrated by a sudden attack of the gout, and had his colleagues possessed his clear insight into the future, without doubt the United States would now include Canada.

In 1785 he returned to America and was greeted by the Assembly of Pennsylvania as "a person who was so greatly instrumental in forming its free constitution."¹ He was also welcomed in a formal address by the Provost, Vice-Provost, and Professors of the University.²

The welcome of the University is evidence of the profound interest which Franklin took in education, and of the recognition of his services to education in Pennsylvania.

As the weakness of the Confederation disclosed itself, suggestions for a "more perfect union" became frequent from the eminent men of the country. In writing to his beloved friend, Dr. Shipley, Bishop of St. Asaph, February 24, 1786, Franklin says:

You seem desirous of knowing what progress we are making here in improving our government. We are, I think, in the right road of improvement, for we are making experiments. I do not oppose all that seem wrong, for the multitude are more effectually set right by experience than kept from going wrong by reasoning with them. And I think we are daily more and more enlightened, so that I have no doubt of our obtaining in a few years as much public felicity as good government is capable of affording. Your newspapers are filled with fictitious accounts of anarchy, confusion, distresses, and miseries we are supposed to be involved in, as consequences of the Revolution; and the few remaining friends of the old government among us take pains to magnify every little inconvenience a change in the course of commerce may have occasioned.

Franklin's calm remark at a time when the Confederation was greatly in danger by such commotions as Shay's Rebellion, that "we are making experiments," recalls Jefferson's opinion of that insurrection:

¹ See the address of the Assembly, Bigelow, Vol. IX, p. 248.

² See p. 110.

Commutations offer nothing threatening; they are a proof that the people have liberty enough, and I could not wish them less than they have. If the happiness of the mass of the people can be secured by the occasional expense of a little temper now and then, or even of a little blood, it will be a precious purchase.

To punish these errors too severely would be to suppress the only safeguard of the public liberty.

A little rebellion now and then is a good thing. * * * An observation of this truth should render honest republican governors so mild in their punishment of rebellions as not to discourage them too much. It is a medicine necessary for the sound health of government.

Thus I calculate an insurrection in one of the thirteen States in the course of eleven years * * * amounts to one in any particular State in one hundred and forty-seven years, say a century and a half. This would not be near as many as have happened in any prior government that has ever existed; so that we shall have the difference between a light and a heavy government as clear gain.

Can history produce a history of a rebellion so honorably conducted * * * God forbid that we should ever be twenty years without such a rebellion * * * What signifies a few lives lost in a century or two? The tree of liberty must be refreshed from time to time with the blood of patriots and tyrants. It is its natural manure.

Franklin wrote to Dr. Shipley before Shay's Rebellion; Jefferson writes after it. The different view which each takes of that most threatening uprising illustrates quite perfectly the difference between the two men in their opinions of government. It is in this letter to Dr. Shipley that Franklin, in acknowledging the receipt of Paley's Moral Philosophy, says:

The new book you gave me * * * I think generally well written and likely to do good; though the reading time of most people is of late so taken up with newspapers and little periodical pamphlets, that few nowadays venture to attempt reading a quarto volume. I have admired to see that, in the last century, a folio, "Burton on Melancholy," went through six editions in about twenty years. We have, I believe, more readers now, but not of such large books.¹

Franklin anticipated the days of the modern newspaper, and of little books, compendious, comprehensive, and entertaining. It will be remembered that he advocated giving "little books with gilt edges and red covers" as prizes to the children in his English school.

In the same letter he speaks of death:

This I shall submit to with less regret, as, having seen during a long life a good deal of this world, I feel a growing curiosity to be acquainted with some other; and can cheerfully, with filial confidence, resign my spirit to the conduct of that great and good Parent of mankind who created it, and who has so graciously protected and prospered me from my birth to the present hour.

Having largely exhausted the resources of this world he was desirous of experimenting in another, and without doubt he desired no other immortality than the continuation of the life which he had lived in this world, attaining moral perfection, observing phenomena, and registering his conclusions concerning them, and contributing as far as possible to the general welfare of the inhabitants of another world.

¹For his letter at the time to the Duke de la Rochefoucauld, April 15, 1787, see Bigelow, Vol. IX, p. 368.

While Franklin's mind turned to the mysteries ever with curiosity he found congenial employment in some of the practical interests of this world. On the 8th of the following April he acknowledges in a letter to his sister the receipt of a box of soap—

The substance of which appears to be very good, but its consistence had probably been affected by the frost, for unless very tenderly and cautiously handled, the cakes would crumble into little pieces between one's fingers. However, having an opportunity of sending some to my friends in France, who much admired what I had of you formerly, I with much difficulty took out twenty-two cakes, which I wrapped separately in spongy paper, hoping that, as they dried, they might consolidate, and the infinite number of little cracks that appeared in them be closed and the parts again united, and so I sent them away in a small box.

The attention which he gives to his sister's imperfect soap suggests that he was still the son of the tallow chandler, and kindly regardful of the practical concerns of his beloved sister, for he concludes his letter:

Draw upon me for the expense of the soap, and your bill shall be paid on sight.

It was in the year 1786 that the people who had crossed over the mountains and settled in the country now called Tennessee, gave to their new commonwealth the name of Franklin. The name of the new country for a few years was Franklin or Frankland, and it is an evidence of the affection in which Dr. Franklin was held by his countrymen, who have given his name to many counties, towns, and public institutions.¹

It was in 1786 that the celebrated letter to Thomas Paine was written, in which Franklin advises him that should he publish his *Age of Reason*, whose reasons were subtle and might prevail with some readers but would not succeed in changing the general sentiments of mankind, and the consequence of printing the piece would be that a great deal of odium would be drawn upon its author and no one would be benefited: "He that spits against the wind, spits in his own face."²

The correspondence of the closing years of Franklin's life abounds in references to religious matters and illustrates the public interest that was taken in Franklin's own religious views.

He was elected in 1787 a delegate to the convention which revised the old Confederation and proposed a better Constitution; but he said that though he was to be one in that business he doubted whether his malady would permit him giving constant attention. There is evidence that he was present at the meetings of the convention except on the

¹According to the census of 1890 there were in the United States twenty-four Franklin counties, thirty-three towns called Franklin, one Franklin City, one Franklin Corners, one Franklin Cross Roads, one Franklindale, one Franklin Depot, one Franklin Falls, two Franklin Furnaces, one Franklin Forks, one Franklin Grove, one Franklin Iron Works, two Franklin Mills, one Franklin's Mills, two Franklin Parks, one Franklin Square, two Franklin Stations, four Franklintons, one Franklinton, six Franklinvilles, and one Frankland.

²See letter of June 15, 1786, Bigelow IX, p. 318. Also April 9, 1787, *idem*, p. 361.

occasion of the opening of Franklin and Marshall College. His malady prevented him frequently from walking, but he struggled against the disease and took as much exercise as possible. He was afterwards able to say in a letter to his sister, September 20, 1787:

The convention finished the 17th instant. I attended the business of it five hours in every day from the beginning, which is something more than four months. You may judge from thence that my health continues; some tell me I look better, and they suppose the daily exercise of going and returning from the Statehouse has done me good.

This reference to his health and of his going and returning from the Statehouse is the best evidence we have of the place where the Constitution of the United States was made.¹

His work in the Convention was important, and his correspondence during the time is interesting. To Jefferson he wrote, April 19, 1787:

Our Federal Constitution is generally thought defective, and a convention, first proposed by Virginia, and since recommended by Congress, is to assemble here next month, to revise it and propose amendments. The delegates generally appointed, as far as I have heard of them, are men of character for prudence and ability, so that I hope good from their meeting. Indeed, if it does not do good it must do harm, as it will show that we have not wisdom enough among us to govern ourselves; and will strengthen the opinion of some political writers, that popular governments can not long support themselves.

I can not speak in detail of Franklin's services in the Convention; they were not inferior in importance to any of his associates. The character of his suggestions might be anticipated from the experience of his life; he sought to harmonize the differences between the States, and he applied to the problem before the Convention the principles worked out in his diplomatic experience. His opinions were that each State should have equal suffrage, which should be in proportion to the sums actually contributed by the respective States to the National Treasury from taxes or internal excise in the States. Franklin's predominant idea was equality of representation; his object was to promote the general welfare by the maintenance of such equality, which was secured by the double system of representation in the Senate and the House of Representatives.

The forming of it (the Constitution) so as to accommodate all the different interests and views was a difficult task; and, perhaps, after all, it may not be received with the same unanimity in the different States that the Convention has given an example of in delivering it out for their consideration. We have done our best and it must take its chances.

This sentiment illustrates Franklin's opinion that a union is permanent, as it has the power of readjusting itself to the conditions. This, as we have said, is the National idea, and Franklin is the chief northern type of the exposition of this idea in the eighteenth century.

Franklin's influence in the Convention won the general signature to the Constitution at last; the speech which he delivered on that occa-

¹The old Statehouse on Chestnut street, below Sixth street, Philadelphia.

sion we have already quoted.¹ We know that the Convention was frequently inharmonious, and there were serious threatenings of the permanent interruption of its proceedings; it was in recognition of the danger of such a calamity that Franklin made his celebrated motion—

That henceforth prayers, imploring the assistance of heaven and its blessings on our deliberations, be held in this assembly every morning before we proceed to business; and that one or more of the clergy of this city be requested to officiate in that service.

The Convention, however, except three or four persons, thought prayer unnecessary. It was in offering this motion that Franklin said:

In this situation of this assembly, groping, as it were, in the dark to find political truth, and scarce able to distinguish it when presented to us, how has it happened, sir, that we have not hitherto once thought of humbly applying to the Father of Lights to illuminate our understandings? In the beginning of the contest with Britain, when we were sensible of danger, we had daily prayers in this room for the Divine protection. Our prayers, sir, were heard, and they were graciously answered. All of us who were engaged in the struggle must have observed frequent instances of a superintending Providence in our favor. To that kind Providence we owe this happy opportunity of consulting in peace on the means of establishing our future national felicity. And have we now forgotten that powerful Friend, or do we imagine we no longer need its assistance? I have lived, sir, a long time, and the longer I live the more convincing proofs I see of this truth, *that God governs in the affairs of men*. And if a sparrow can not fall to the ground without His notice, is it probable that an empire can rise without His aid? We have been assured, sir, in the sacred writings that “except the Lord build the house, they labor in vain that build it.” I firmly believe this, and I also believe that without His concurring aid we shall succeed in this political building no better than the builders of Babel; we shall be divided by our little, partial, local interests; our projects will be confounded, and we, ourselves, shall become a reproach and a by-word down to future ages. And, what is worse, mankind may hereafter, from this unfortunate instance, despair of establishing government by human wisdom and leave it to chance, war, and conquest.

Franklin's comments, in his letters to his friends, on the adoption of the Constitution, emphasize many of his opinions already known to us. To Mr. M. Le Veillard, February 17, 1788:

I sent you, with my last, a copy of the new Constitution proposed for the United States by the late General Convention. I sent one also to our excellent friend, the Duke de la Rochefoucauld. I attended the business of the Convention faithfully for four months. Inclosed you have the last speech I made in it. Six States have already adopted the Constitution, and there is now little doubt of its being accepted by a sufficient number to carry it into execution, if not immediately, by the whole. It has, however, met with great opposition in some States, for we are at present a nation of politicians. And though there is a general dread of giving too much power to our governors, I think we are more in danger from too little obedience in the governed. We shall, as you suppose, have imposts on trade and custom-houses, not because other nations have them, but because we can not at present do without them. We want to discharge our public debt occasioned by the late war. Direct taxes are not so easily levied on the scantily settled inhabitants of our wide-extended country; and what is paid in the price of merchandise is felt less by the consumer, and less the cause of complaint. When we are out of debt we may leave our trade free, for our ordinary charges of government will not be great.

To M. Dupont de Nemours on the 9th of June he wrote characteristically: "But we must not expect that a new government may be formed, as a game of chess may be played by a skillful hand, without a fault;" and he proceeded to illustrate his favorite idea that experience would determine the true course of the new government.

As Franklin aged he became somewhat optimistical, an unusual thing with an aged person, and perhaps gave the fullest expression to his optimism in a letter to M. Le Veillard, June 8, 1788:

Thank God, the world is growing wiser and wiser; and as by degrees men are convinced of the folly of wars for religion, for dominion, or for commerce they will be happier and happier.

Though over 80 years of age he continued to take interest in all the affairs of mankind, and the writings of his closing years manifest no decay of his mental powers. Some of his most perfect papers, in point of style and comprehension of treatment, were written in the last two years of his life. He saw improvement and encouragement everywhere. In his pamphlet on the Internal State of America, 1788, he says:

It is true that in some of the States there are parties and discords, but let us look back and ask if we were ever without them. Such will exist wherever there is liberty, and perhaps they help to preserve it. By the collision of different sentiments sparks of truth are struck out and political light is obtained. The different factions which at present divide us aim all at the public good; the differences are only about the various modes of promoting it. * * * Parties are therefore the common lot of humanity, and ours are by no means more mischievous or less beneficial than those of other countries, nations, and ages enjoying in the same degree the great blessing of political liberty.

This was written when the bitterness of party feeling was more intense than it has ever been since in our history.

Whoever has traveled [he also remarks] through the various parts of Europe and observed how small is the proportion of people in affluence or easy circumstances there compared with those in poverty and misery; the few rich and haughty landlords, the multitude of poor, abject, rack-rented, tithe-paying tenants and half-paid and half-starved, ragged laborers, and views here the happy mediocrity that so generally prevails throughout these States where the cultivator works for himself and supports his family in decent plenty, will, methinks, see abundant reason to bless divine Providence for the evident and great difference in our favor and be convinced that no nation known to us enjoys a greater share of human felicity.

This optimistic view of America is characteristic of the times and probably expresses the opinion which the American people have of their country at the present time.

In his paper on the Prospect for Emigrants to America he says:

No rewards are given to encourage new settlers to come among us, whatever degree of property they may bring with them nor any exemption from common duties. Our country offers to strangers nothing but a good climate, fertile soil, wholesome air, free governments, wise laws, liberty, a good people to live among, and a hearty welcome. Those Europeans who have these or greater advantages at home would do well to stay there.

This paragraph might be epitomized in saying that a man's country is where he is best off; a saying to which Franklin would doubtless give his approval.

Franklin had long been in favor of the abolition of slavery and about his closing years gathers the halo of the light which shines from his writings on behalf of the slave. His plan for the improvement of the African race is outlined in a letter to Washington somewhat in the form of a report.

First. A Committee of Inspection should superintend the morals, general conduct, and ordinary situation of free negroes to furnish them advice and instruction, protection from wrongs, and other friendly offices.

Second. A Committee of Guardians should place out children and young people with suitable persons that they might during a moderate term of apprenticeship or servitude learn some trade or other business for subsistence. In forming contracts on these occasions the Committee should secure to the Society, as far as practicable, the right of guardianship over persons so bound.

Third. A Committee of Education should superintend the school instruction of the children of the free blacks; they might either influence them to attend regularly the schools already established or form others with this view; they should in other cases provide that the pupils might receive such learning as is necessary for their future situation in life, and especially a deep impression of the most important and generally acknowledged moral and religious principles.

Fourth. A Committee of Employ should endeavor to procure constant employment for those free negroes who were able to work, as the want of this would occasion poverty, idleness, and many vicious habits.

And he incorporated in this part of his plan the same notions which he had already expressed in his plan for the management of the orphan schoolhouses. That the Committee in providing employment for those qualified to take it should prevail upon the apprentices to bind themselves for such a term of years as might compensate their masters for the expense and trouble of their instruction and maintenance. Useful and simple manufactures, such as require but little skill, should be entered upon as a substantial means of assisting those who were qualified to commence business for themselves. The expense incident to the prosecution of this plan was to be defrayed by a fund formed by donations or subscriptions for the particular purpose.

Perhaps no more interesting letter is found in the correspondence of this part of Franklin's life than his communication to Noah Webster, December 26, 1789, acknowledging a copy of Webster's *Dissertations on the English Language*. Franklin pronounced it "an excellent work," one that "will be greatly useful in turning the thoughts of our countrymen to correct writing." After commenting upon some new words that had come into the language since 1723, he says:

The Latin language, long the vehicle used in distributing knowledge among the different nations of Europe, is daily more and more neglected, and one of the modern tongues, namely, the French, seems in point of universality to have supplied its place. It is spoken in all the courts of Europe, and most of the *literati*, those even who do not speak it, have acquired knowledge enough of it to enable them easily to read the books that are written in it. This gives a considerable advantage to that nation; it enables its authors to inculcate and spread throughout other nations such sentiments and opinions on important points as are most conducive to its interests, or which may contribute to its reputation by promoting the common interests of mankind. It is perhaps owing to its being written in French, that Voltaire's treatise on Toleration has had so sudden and so great an effect on the bigotry of Europe as

almost entirely to disarm it. The general use of the French language has likewise a very advantageous effect on the profits of the bookselling branch of commerce, it being well known that the more copies can be sold that are struck off from one composition of types, the profits increase in a much greater proportion than they do in making a great number of pieces in any other kind of manufacture. And at present there is no capital town in Europe without a French bookseller's shop corresponding with Paris.

But Franklin not only discerns the universality of the French tongue, he anticipates again the growing universality of the English:

Our English bids fair to obtain the second place. The great body of excellent printed sermons in our language, and the freedom of our writings on political subjects, have induced a number of divines of different sects and nations, as well as gentlemen concerned in public affairs, to study it; so far, at least, as to read it. And if we were to endeavor the facilitating its progress, the study of our tongue might become much more general. Those who have employed some parts of their time in learning a new language have frequently observed that, while their acquaintance with it was imperfect, difficulties small in themselves operated as great ones in obstructing their progress. A book, for example, ill printed or a pronunciation in speaking not well articulated would render a sentence unintelligible which from a clear print or a distinct speaker would have been immediately comprehended. If, therefore, we would have the benefit of seeing our language more generally known among mankind we should endeavor to remove all the difficulties, however small, that discourage the learning it.

He concluded his letter to Webster by remarking that the spelling book which Webster had sent him was miserably printed and on wretched paper.

It is interesting to know that this spelling book, the most famous of its kind ever made, and which in our day is used annually, it is said, to the number of more than a million copies, was approved by Franklin. His appeal for the English language in his letter to Webster was his last word on education. He ended as he began, with encouraging the study of his native language and literature. The empire of that language and that literature which he foresaw is realized in our day.

By his will he provided for the disposition of his books to the Philosophical Society of Philadelphia and to the American Philosophical Society. Faithful to his love of his native city, he wrote:

I was born in Boston, New England, and owe my first instructions in literature to the free grammar schools established there. I therefore give £100¹ sterling to my executors, to be by them, the survivors or survivor of them, paid over to the managers or directors of the free schools in my native town of Boston, to be by them, or by those person or persons who shall have the superintendence and management of the said schools, put out to interest, and so continued at interest forever, which interest annually shall be laid out in silver medals and given as honorary rewards annually by the directors of the said free schools belonging to the said town, in such manner as to the discretion of the selectmen of the said town shall seem meet.

¹“This £100,” says Bigelow, “proved a singularly auspicious investment. With the addition of a little to the fund from the city treasury of Boston its medals have rewarded the diligence and exemplary conduct of over 4,000 boys who have been found to merit them, and have no doubt stimulated to extra exertion perhaps hundreds of thousands who were less fortunate. The amount of this fund has more than doubled since Franklin's death.

By a codicil to the will Franklin made an effort to provide for the perpetual application of his own ideas regarding the encouragement of apprentices for the benefit of the inhabitants of Boston and Philadelphia. The provision is as follows:

I was born in Boston, New England, and owe my first instructions in literature to the free grammar-schools established there. I have, therefore, already considered these schools in my will. But I am also under obligations to the State of Massachusetts for having, unasked, appointed me formerly their agent in England, with a handsome salary, which continued for some years; and although I accidentally lost in their service, by transmitting Governor Hutchinson's letters, much more than the amount of what they gave me, I do not think that ought in the least to diminish my gratitude.

I have considered that, among artisans, good apprentices are most likely to make good citizens, and, having myself been bred to a manual art, printing, in my native town, and afterwards assisted to set up my business in Philadelphia by kind loans of money from two friends there, which was the foundation of my fortune, and of all the utility in life that may be ascribed to me, I wish to be useful even after my death, if possible, in forming and advancing other young men that may be serviceable to their country in both those towns. To this end I devote two thousand pounds sterling, of which I give one thousand thereof to the inhabitants of the town of Boston, in Massachusetts, and the other thousand to the inhabitants of the city of Philadelphia, in trust, to and for the uses, intents, and purposes hereinafter mentioned and declared.

The said sum of one thousand pounds sterling, if accepted by the inhabitants of the town of Boston, shall be managed under the direction of the selectmen, united with the ministers of the oldest Episcopalian, Congregational, and Presbyterian churches in that town, who are to let out the sum upon interest, at five per cent per annum, to such young married artificers, under the age of twenty-five years, as have served an apprenticeship in the said town and faithfully fulfilled the duties required in their indentures, so as to obtain a good moral character from at least two respectable citizens, who are willing to become their sureties, in a bond with the applicants, for the repayment of the moneys so lent, with interest, according to the terms hereinafter prescribed; all which bonds are to be taken for Spanish milled dollars, or the value thereof in current gold coin; and the managers shall keep a bound book or books, wherein shall be entered the names of those who shall apply for and receive the benefits of this institution, and of their sureties, together with the sums lent, the dates, and other necessary and proper records respecting the business and concerns of this institution. And as these loans are intended to assist young married artificers in setting up their business, they are to be proportioned by the discretion of the managers so as not to exceed sixty pounds sterling to one person, nor to be less than fifteen pounds; and if the number of appliers so entitled should be so large as that the sum will not suffice to afford to each as much as might otherwise not be improper, the proportion to each shall be diminished so as to afford to every one some assistance. These aids may, therefore, be small at first, but, as the capital increases by the accumulated interest, they will be more ample. And in order to serve as many as possible in their turn, as well as to make the repayment of the principal borrowed more easy, each borrower shall be obliged to pay, with the yearly interest, one-tenth part of the principal, which sums of principal and interest, so paid in, shall be again let out to fresh borrowers.

And, as it is presumed that there will always be found in Boston virtuous and benevolent citizens willing to bestow a part of their time in doing good to the rising generation by superintending and managing this institution gratis, it is hoped that no part of the money will at any time be dead, or be diverted to other purposes, but be continually augmenting by the interest; in which case there may, in time, be

more than the occasions in Boston shall require, and then some may be spared to the neighboring or other towns in the said State of Massachusetts who may desire to have it; such towns engaging to pay punctually the interest and the portions of the principal, annually, to the inhabitants of the town of Boston.

If this plan is executed, and succeeds as projected without interruption for one hundred years, the sum will then be one hundred and thirty-one thousand pounds; of which I could have the managers of the donation to the town of Boston then lay out, at their discretion, one hundred thousand pounds in public works, which may be judged of most general utility to the inhabitants, such as fortifications, bridges, aqueducts, public buildings, baths, pavements, or whatever may make living in the town more convenient to its people, and render it more agreeable to strangers resorting hither for health or a temporary residence. The remaining thirty-one thousand pounds I would have continued to be let out on interest, in the manner above directed, for another hundred years, as I hope it will have been found that the institution has had a good effect on the conduct of youth, and been of service to many worthy characters and useful citizens. At the end of this second term, if no unfortunate accident has prevented the operation, the sum will be four millions and sixty-one thousand pounds sterling, of which I leave one million sixty-one thousand pounds to the disposition of the inhabitants of the town of Boston, and three millions to the disposition of the government of the State, not presuming to carry my views farther.

All the directions herein given respecting the disposition and management of the donation to the inhabitants of Boston, I would have observed respecting that to the inhabitants of Philadelphia, only, as Philadelphia is incorporated, I request the corporation of that city to undertake the management agreeably to the said directions; and I do hereby vest them with full and ample powers for that purpose.¹

¹ FRANKLIN FUND.

This is a fund for the encouragement of young mechanics. Dr. Benjamin Franklin, in his will, gave the inhabitants of Boston, in 1791, £1,000 sterling, which he directed to be loaned in sums of not more than £60 nor less than £15 to one applicant, at 5 per cent interest, to be repaid in annual installments of 10 per cent each. These loans are restricted to "young married artificers," under the age of 25, who have faithfully served an apprenticeship in Boston, so as to obtain a certificate of good moral character from at least two respectable citizens, who are willing to become their sureties in a bond for their payment of the money.

It was the estimate of Dr. Franklin that the £1,000 would increase in one hundred years to £131,000, and then the managers of the fund were to lay out in public works £100,000, and the balance to continue on interest for another hundred years, which he estimated would then amount to £4,600,000. Of this amount the sum of £1,610,000 was to be at the disposal of the inhabitants of the town of Boston, and the balance to be paid to the government of the State.

The board of aldermen, 1882, after a report in the matter of the Franklin fund from a committee consisting of Aldermen Stebbins and Hart, passed the following resolves:

Resolved, That in the opinion of this board, comprising a majority of the trustees of the Franklin fund, it is expedient and highly desirable that the proportion of said fund which will be available in 1891-'92 for investment in "some public work" should be devoted to the extinguishment of the debt incurred for the purchase of the West Roxbury Park.

Resolved, That in the event of such disposition of the said portion of the Franklin fund, the park just purchased should be called "Franklin Park," in honor of the testator, who has so generously endowed his native town.

The name "Franklin Park" was adopted by the board of park commissioners.

The trustees under the will are the selectmen (now board of aldermen), united

Franklin's ideas on education differed from those of his contemporaries, and in order to show by comparison and contrast the educational notions which lie at the bottom of Franklin's philosophy, his ideas on education will be compared with those of John Adams and Thomas Jefferson. It may be premised that John Adams's ideas of education are typical of New England, and by comparing them and Franklin's it will be seen how the life of Franklin in Pennsylvania modified his early New England notions, and perhaps explain some of the variations between the general liberal plan of education characteristic of New England and the middle colonies.

Franklin, we have seen, was a self-educated man. John Adams received the degree of Bachelor of Arts in Harvard College in 1775, and soon after became the teacher of the grammar school in the town of Worcester. As was the case so frequently in New England schools, teaching was but an expedient to supply for the time being the wants of life and afford sufficient leisure to read law.

Adams was closely associated with Franklin in public life, both being members of important committees in the old Congress, the most famous of which was the committee that drafted the Declaration of Independence, both having the independence of the colonies at heart while that independence seemed a great way off, and both serving their country in joint diplomatic relations in Paris. They were very

with the ministers of the oldest Episcopalian, Congregational, and Presbyterian churches in the town of Boston. The first loan was made May, 1791.

The treasurer of the fund, Samuel F. McCleary, in his annual report to the trustees, makes the statement of the condition February 1, 1892, viz:

Amount of fund, February 1, 1891.....	\$383,496.38
Interest accrued during the year.....	15,345.13
Amount of fund, February 1, 1892.....	<u>398,841.51</u>

This amount consists of—

Deposits in Massachusetts Hospital Life Insurance Company.....	395,288.82
Deposits in Suffolk Savings Bank.....	3,282.06
Cash.....	63.00
Balances of bonds for loans.....	270.00
Total.....	<u>398,841.51</u>

Income to be loaned to young married artificers, under the age of 35 years, who have served an apprenticeship in Philadelphia, and faithfully fulfilled the duties required in their indentures, and who can furnish two satisfactory securities for the return of the money in ten annual installments, with interest at 5 per cent:

Invested capital, December 31, 1891.

Philadelphia City loans:

6 per cent, taxable.....	\$500.00
6 per cent, free.....	48,200.00
4 per cent.....	100.00
Pittsburg City 7 per cent loans.....	1,000.00

much unlike in character, Franklin being easy, generous, liberal in his views, full of tact, wise in his observations, and preëminently happy in his relations with men. John Adams was upright, active, suspicious, puritanical, and abrupt, ever viewing public affairs as a lawyer considers his case in hand, and filled with an enormous capacity for business. We have already seen how the various activities in which Franklin was engaged through life determined his educational notions; in a similar manner John Adams's activities, which were chiefly legal and political, gave character to his ideas on education. Franklin was ever suggesting education as a means for cultivating the applied arts, for improving agriculture, for extending the conquests of science, for promoting the general welfare. It must have been noticed in our outline of Franklin that he gave very little attention in his plan to political studies; he mentions them and urges the study of the principles of government, history, and politics, but he does not found his scheme of education upon a political basis; he rather founded his plans upon the scientific and industrial basis, for he was a man active in industrial affairs, little given to speculation, and apt to view political events as mere changes on the sea of public affairs. Adams, on the other hand, was a born politician. The oldest letter of John Adams,

United States 4 per cent loans	\$2,000.00
Bonds and mortgages	30,200.00
Loans to young married artificers	209.56
	<hr/>
	82,209.56

Cash receipts and payments, January 1 to December 31, 1891.

RECEIPTS.

Interest:

Philadelphia City loans	\$2,996.50
Pittsburg City loans	70.00
Pennsylvania State loans	187.50
United States loans	80.00
Bonds and mortgages	1,320.36
Loans to artificers	24.27
	<hr/>
	4,678.63

Investments collected:

Philadelphia City loans	\$1,200.00
Pennsylvania State loans	2,500.00
Bonds and mortgages	2,250.00
Loans to artificers	120.44
	<hr/>
	6,070.44

Cash balance	3,603.95
	<hr/>

Cash balance January 1, 1891	14,353.02
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PAYMENTS.

Miscellaneous expenses	\$162.84
Investment, bond and mortgage	2,000.00
	<hr/>
	2,162.84

Cash balance December 31, 1891	12,190.18
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written while yet a school-teacher in Worcester, October 12, 1755, is a political essay, in which he says:

Be not surprised that I am turned politician; this whole town is immersed in politics. The interests of nations and the dira of war make the subject of every conversation. I sit and hear, and after having been led through the maze, I sometimes retire, and by laying together form some reflections pleasing to myself.

He was always "immersed in politics," and politics was the basis of his educational ideas.¹ These first appear in his treatise on Government:

Laws for the liberal education of youth, especially of the lower classes of the people, are so extremely wise that to a humane and generous man no expense for this purpose would be thought extravagant.

He is the type of those men who would prescribe the means and ends of the state and "by good laws regulate all the affairs of mankind." Nowhere does Franklin ever refer to a "law which should provide for the liberal education of youth;" Franklin never carried his scheme of education over into government. John Adams would embody a provision for education in the fundamentals of government, and this he did in the constitution of Massachusetts of 1780, of which instrument he was the chief author:

SECTION II.—*The Encouragement of Literature, etc.*

Wisdom and knowledge, as well as virtue, diffused generally among the body of the people, being necessary for the preservation of their rights and liberties, and as these depend on spreading the opportunities and advantages of education in the various parts of the country and among the different orders of the people, it shall be the duty of legislators and magistrates, in all future periods of this Commonwealth, to cherish the interests of literature and the sciences and all seminaries of them, especially the university at Cambridge, public schools and grammar schools in the towns; to encourage private societies and public institutions, rewards and immunities for the promotion of agriculture, arts, sciences, commerce, trades, manufactures, and a natural history of the country; to countenance and inculcate the principles of humanity and general benevolence, public and private charity, industry and frugality, honesty and punctuality in their dealings, sincerity, good humor, and all social affections and generous sentiments among the people.

His grandson, Charles Francis Adams, gives this information on the origin of this celebrated clause:

This feature of the constitution of Massachusetts is peculiar and, in one sense, original with Mr. Adams. The recognition of the obligation of a State to promote a higher and more extended policy than is embraced in the protection of the temporal interests and political rights of the individual, however understood among enlightened minds, had not at that time been formally made a part of the organic law. Those clauses, since inserted in other State constitutions, which, with more or less fullness, acknowledged the same principle, are all manifestly taken from this source. The following history of the origin of it is taken from an account given by the author in 1809:

"In traveling from Boston to Philadelphia, in 1774, '75, '76, and '77, I had several times amused myself, at Norwalk, in Connecticut, with the very curious collection of birds and insects of American production, made by Mr. Arnold; a collection which he

¹ Life and Works of John Adams, Vol. I, p. 24.

afterwards sold to Governor Tryon, who sold it to Sir Ashton Lever, in whose apartments in London I afterwards viewed it again. This collection was so singular a thing that it made a deep impression upon me, and I could not but consider it a reproach to my country that so little was known, even to herself, of her natural history.

When I was in Europe in the years 1778 and 1779, in the commission to the King of France, with Dr. Franklin and Mr. Arthur Lee, I had opportunities to see the King's collections and many others which increased my wishes that nature might be examined and studied in my own country as it was in others.

In France among the academicians and other men of science and letters I was frequently entertained with inquiries concerning the Philosophical Society of Philadelphia and with eulogiums on the wisdom of that institution and encomiums on some publications in their transactions. These conversations suggested to me the idea of such an establishment at Boston where I knew there was as much love for science and as many gentlemen who were capable of pursuing it as in any other city of its size.

In 1770 I returned to Boston in the French frigate *La Sensible* with the Chevalier de la Luzerne and M. Marbois. The corporation of Harvard College gave a public dinner in honor of the French ambassador and his suite, and did me the honor of an invitation to dine with them. At table in the philosophy chamber I chanced to sit next to Dr. Cooper. I entertained him during the whole of the time we were together with an account of Arnold's collections, the collections I had seen in Europe, the compliments I had heard in France upon the Philosophical Society at Philadelphia, and concluded with proposing that the future legislature of Massachusetts should institute an academy of arts and sciences.

The doctor at first hesitated, thought it would be difficult to find members who would attend to it; but his principal objection was that it would injure Harvard College by setting up a rival to it that might draw the attention and affections of the public in some degree from it. To this I answered, first, that there were certainly men of learning enough that might compose a society sufficiently numerous; and, secondly, that instead of being a rival to the university it would be an honor and advantage to it. That the president and principal professors would no doubt be always members of it; and the meetings might be ordered wholly or in part at the college and in that room. The doctor at length appeared better satisfied and I entreated him to propagate the idea and the plan as far and as soon as his discretion would justify. The doctor accordingly did diffuse the project so judiciously and effectually that the first legislature under the new constitution adopted and established it by law.

Afterwards, when attending the convention for forming the constitution, I mentioned the subject to several members, and when I was appointed by the subcommittee to make a draft of a project of a constitution to be laid before the convention, my mind and heart were so full of this subject that I inserted the chapter fifth, section second.

I was somewhat apprehensive that criticism and objections would be made to the section, and particularly that the "natural history," and the "good humor" would be stricken out, but the whole was received very kindly, and passed the convention unanimously without amendment.

It is a singularity, perhaps worthy of note in connection with these injunctions, that the individuals who have since been elevated by the popular voice to the chief offices of the State, with a single exception, have not been noted among their fellow citizens for any superior acquisitions of learning or intellectual culture. A considerable number have not gone through the higher grades of education in Massachusetts at all.

John Adams has the fame of being the first American statesman to incorporate in a State constitution a provision for public education. There were no public schools in Pennsylvania in Franklin's day and all his ideas on education related chiefly to private enterprise and individual effort. There had been public schools in Massachusetts from the beginning of the colony and the inertia of educational ideas moving in the colony carried into the first State constitution this celebrated provision for the encouragement of learning. It will be noticed that Adams's plan provided for "the promotion of agriculture, arts, sciences, commerce, trades, manufactures, and the natural history of the country," the original suggestion of which is explained by his grandson.

It is a New England idea to make education a matter of laws. Class distinctions in New England were marked in Franklin's day; the children of the tallow chandler were not classed as fit companions for the children of clergymen and lawyers. This will be remembered in interpreting another passage in Adams's treatise on Government pertaining to education:

The education here intended is not merely that of the children of the rich and noble, but of every rank and class of people down to the lowest and the poorest. It is not too much to say that schools for the education of all should be placed at convenient distances and maintained at the public expense; the revenue of the State would be applied infinitely better, more charitably, wisely, usefully, therefore politically, in this way than even in maintaining the poor. This would be the best way of preventing the existence of the poor. If nations should ever be wise, instead of erecting thousands of useless offices, or engaging in unmeaning wars, they should make a fundamental maxim of this, that no human being shall grow up in ignorance. In proportion as this is done tyranny will disappear, kings and nobles will be made to feel their equitable equality with commoners, and commoners should see their interest and advantage to respect the guardians of the laws, for guardians they must have as long as human nature endures. There is no room to doubt that the schools, academies, and universities, the stage, the press, the bar, the pulpit, and Parliament, might all be improving to better purpose than they have been in any country for this great purpose.

Again:

The greater part of every people are still ignorant, and, although their leaders might artfully persuade them to a thousand idle expenses, they would not be able to persuade them to this. Education, then, must be supported by private munificence, and such sources, although sufficient to maintain a few schools and a university in a great nation, can never be sufficient to maintain schools in sufficient numbers to educate a whole people. Where a senate is preserved, it is always a maxim with them to respect learning and educate their own families. Their example is followed by all others who are in any way in easy circumstances. In a government of three branches, commoners as well as nobles are under the necessity of educating their children, because they hope to be called to public service, where it is necessary. In all the mixed governments of antiquity, education was necessary, and where the people had a share it was the most generally practiced, but in a simple government it never was general. In Sparta it was far from being general; it was confined to youth of family; so it was in the aristocracy in Rome. But, although we have examples of simple democracy, to recur to that the majority must be ignorant and poor, and sometimes an opposition made by members of the lowest class, who are often joined for sinister purpose by some men of consequence, but convinces

that the general public education never can long exist in a simple democracy. The stinginess, the envy, and malignity of the base and ignorant would be flattered by the artful and designing. If the education of every family be left to its own expense, the rich only might have their children educated.

Franklin would never have mentioned education in such a connection. He did not view the state as merely a political concern. He frequently has occasion to remark on the different conditions of the rich and poor, and he was ever projecting schemes by which the poor might become rich. He would set everybody on the way to wealth. Industry, frugality, and self-education were the basis of Franklin's conception of state. Adams, on the other hand, viewed the state wholly as a lawyer, conceived it as an affair of laws which adjusted, or attempted to adjust the rights of the rich and the poor, the weak and the strong, the good and the bad, and therefore placing law as of chief importance in the state, he would regulate education by law. Nowhere does Adams intimate that the individual should educate himself.

When in Holland in 1780 Adams wrote a number of letters upon interesting subjects respecting the Revolution of America and in reply to the inquiry "whether the common people in America are not inclined, when they are able to find sufficient means, to frustrate by force the good intentions of the politicians," wrote:

The difference in that country (America) is not so great as it is in some others between the common people and the gentlemen; for noblemen we have none. There is no country where the common people, I mean the tradesmen, the husbandmen, and the laboring people, have such advantages of education as in that (America), and it may be truly said that their education, their understanding, and their knowledge are as nearly equal as their birth, fortune, dignities, and titles.

This might be expected from one whom his enemies sometimes called "the well-born" and it is eminently in keeping with the general tone of New England thought at the time. Nowhere in Franklin's writings is there found such a statement as Adams's, that knowledge among Americans is "as nearly equal as their birth, fortune, dignities, and titles." The counter statement is made by Franklin in his autobiography when speaking of the beneficial effect of founding the Philadelphia Library.¹

In other words, Franklin was a democrat in his educational ideas; Adams, a New England aristocrat of the radical type, who would direct and guard the people's interest, discriminate as to their "birth, fortune, dignities, and titles" and by the artifice of law attempt to equalize their condition as far as possible.

The different effect on America of the ideas of these two men is apparent in our time. Franklin's plan of self-education, rising to the dignity of utilitarian philosophy, has profoundly influenced the American people and stimulated thousands to improve themselves and acquire by frugality and industry advantages which were not theirs by birth. Adams, prescribing public education by the law of the

State, was among the founders of our public school system, by which the State educates the young at public expense. The ideas of John Adams on education have eliminated largely and necessarily from the body of youth receiving instruction at the expense of the State that personal ambitious interest in self-education which is characteristic of those who follow Franklin's plan. Our public schools are characterized by a mechanism which produces a uniform training of an average quality and transforms ignorant childhood into book-taught youth, often without stirring that sense of personal concern in the acquisition of knowledge of which Franklin was always fondly speaking.

If John Adams was instrumental in founding the public school system of the United States when he incorporated in the constitution of Massachusetts of 1780 that famous clause providing for the maintenance of public schools and higher institutions of learning, which has largely influenced the entire North, and which may be traced in these successive State constitutions that have been made from Massachusetts to Oregon, and if he was successful in incorporating education by law in the organization of the State, he yet failed, as all have failed, who would resolve education into a conformity to the requirements of a law however wise in its ultimate purposes, in founding a system of education which can compete in true value with that system which, like Franklin's, transforms every individual into an ever-improving, self-educating soul.

Doubtless it has occurred to the reader that it is by the Franklin model that such men are made as Horace Greeley, Abraham Lincoln, Robert Fulton, and other original and creative minds, who are self-educated, yet who rank among the determinative forces in America. It is the old story of the college-made and self-made man, but we must admit that, as human nature is, it is better for our country to have the advantage of the results obtained by the application of John Adams' plan for education by prescribing it in the fundamental law of the State than to run the risk of securing an educated democracy by the application of Franklin's plan of self-education. The few will profit by Franklin's example, the many will be improved by the operation of the laws which John Adams favored. In fine, Franklin's ideas applies to individuals; Adams', to the welfare of the masses.

John Adams writes in 1785:

The whole people must take upon themselves the education of the whole people and must be willing to bear the expense of it. There should not be a district of one mile square without a school in it, not founded by a charitable individual, but maintained at the expense of the people themselves.

Benjamin Rush had written to Adams his opinions that—

The benefits of free schools should not be overlooked. Indeed, suffrage, in my opinion, should never be permitted to a man that could not write or read.

To which Adams replied:

Free schools and all schools, colleges, academies, and seminaries of learning I can recommend from my heart, but I dare not say that the suffrage should never be

permitted to a man who can not read and write. What would become of the Republic of France if the lives, fortunes, and character of the twenty-four million and a half men who can neither read nor write should be at the absolute disposal of five hundred thousand who can read?

Adams's opinion on intelligent qualification for voting may be said to express the wish of thoughtful Americans of all times.

In the closing years of his life Adams was in close and delightful correspondence with Thomas Jefferson at a time when Jefferson was engaged in establishing the University of Virginia. In a letter to Jefferson, written from Quincy, July 16, 1814, we obtain quite a glimpse of the character of Adams's education if not of his ideas on that subject:

I am very glad [he writes] you have seriously read Plato, and still more rejoiced to find that your reflections upon him so perfectly harmonize with mine. Some thirty years ago, I took upon me the severe task of going through all his works.¹ With the help of two Latin translations and one English and one French translation, and comparing some of the most remarkable passages with the Greek, I labored through the tedious toil. My disappointment was very great, my astonishment was greater, and my disgust was shocking. Two things only did I learn from him. First, that Franklin's ideas of exempting husbandmen and mariners, etc., from the depredations of war, were borrowed from him; and second, that sneezing is a cure for the hiccough. Accordingly, I have cured myself and all my friends of that provoking disorder, for thirty years, with a pinch of snuff.

Some parts of his dialogues are entertaining, like the writings of Rousseau; but his *Laws* and his *Republic*, from which I expected most, disappointed me most. I could scarcely exclude the suspicion that he intended the latter as a bitter satire upon all republican governments, as Xenophon undoubtedly designed by his essay on democracy to ridicule that species of republic. In a late letter to the learned and ingenious Mr. Taylor, of Hazelwood, I suggested to him the project of writing a novel, in which the hero should be sent on his travels through Plato's republic, and all his adventures, with his observations on the principles and opinions, the arts and sciences, the manners, customs, and habits of the citizens, should be recorded. Nothing can be conceived more destructive of human happiness, more infallibly contrived to transform men and women into brutes, yahoos, or demons, than a community of wives and property. Yet, in what are the writings of Rousseau and Helvetius wiser than those of Plato? "The man who first fenced a tobacco yard and said, 'this is mine,' ought instantly to have been put to death," said Rousseau. "The man who first pronounced the barbarous word *Dieu*, ought to have been immediately destroyed," says Diderot. In short, philosophers, ancient and modern, appear to me as mad as Hindoos, Mahometans, and Christians. No doubt they would all think me mad, and for anything I know, this globe may be the *Bedlem le Bicetre* of the universe.

After all, as long as property exists, it will accumulate in individuals and families. As long as marriage exists, knowledge, property, and influence will accumulate in families. Your and our equal partition of intestate estates, instead of preventing, will in time augment the evil, if it is one. The French revolutionists saw this, and were so far consistent. When they burned pedigrees and genealogical trees they annihilated, as far as they could, marriages, knowing that marriage, among a thousand other things, was an infallible source of aristocracy. I repeat it, so sure as the idea and the existence of property is admitted and established in society, accumulations of it will be made; the snowball will grow as it rolls.

¹ *Idem*, Vol. ix, p. 540.

Cicero was educated in the groves of Academus, where the name and memory of Plato was idolized to such a degree that if he had wholly renounced the prejudices of his education his reputation would have been lessened, if not injured and ruined. In his two volumes of Discourses on Government, we may presume that he fully examined Plato's Laws and Republic, as well as Aristotle's writings on government. But these have been carefully destroyed, not improbably with the general consent of philosophers, politicians, and priests. The loss is as much to be regretted as that of any production of antiquity.

Nothing seizes the attention of the staring animal so surely as paradox, riddle, mystery, invention, discovery, wonder, temerity.

Plato and his disciples from the fourth century Christians, to Rousseau and Tom Paine, have been full sensible of this weakness in mankind, and have too successfully grounded upon it their pretensions to fame. I might, indeed, have mentioned Bolingbroke, Hume, Gibbon, Voltaire, Turgot, Helvetius, Diderot, Condorcet, Buffon, De la Lande, and fifty others, all a little cracked.

Be to their faults a little blind,
To their virtues ever kind.

Education! oh education! the greatest grief of my heart and the greatest affliction of my life! To my mortification I must confess that I have never closely thought or deliberately reflected upon the subject, which never occurs to me now without producing a deep sigh, a heavy groan, and sometimes tears. My cruel destiny separated me from my children almost continually from their birth to their manhood. I was compelled to leave them to the ordinary routine of reading, writing, and Latin school, academy, and college. John, alone, was much with me, and he but occasionally.

If I venture to give you my thoughts at all, they must be very crude. I have turned over Locke, Milton, Condillac, Rousseau, and even Miss Edgeworth, as a bird flies through the air. The "Preceptor" I have thought a good book. Grammar, rhetoric, logic, ethics, mathematics, can not be neglected. Classics, in spite of our friend Rush, I must think indispensable. Natural history, mechanics, and experimental philosophy, chemistry, etc., at least their rudiments, can not be forgotten. Geography, astronomy, and even history and chronology, though I am myself afflicted with a kind of pyrrhonism in the two latter, I presume can not be omitted. Theology I would leave to Ray, Durham, Nieuwentyt, and Paley, rather than to Luther, Zinzendorf, Swedenborg, Wesley, or Whitefield, or Thomas Aquinas, or Wollébius. Metaphysics I would leave in the clouds with the materialists and spiritualists, with Leibnitz, Berkeley, Priestley, and Edwards, and, I might add, Hume and Reid. Or, if permitted to be read, it should be with romances and novels. What shall I say of music, drawing, fencing, dancing, and gymnastic exercises? What of languages, oriental or occidental; of French, Italian, German, or Russian; of Sanscrit, or of Chinese? The task you have prescribed to me of grouping these sciences or arts under professors, within the views of an enlightened economy, is far beyond my forces. Loose indeed, and undigested, must be all the hints I can note.

Might grammar, logic, and rhetoric be under one professor? Might mathematics, mechanics, and natural philosophy be under another? Geography and astronomy under a third? Laws and government, history, and chronology under a fourth? Classics might require a fifth. Condillac's course of study has excellent parts; among many systems of mathematics—English, French, and American—there is none preferable to Bezout's course; La Harpe's course of literature is very valuable.¹

¹Lack of space forbids a comparison of Franklin's ideas on education with those of Washington, Hamilton, and Madison. Washington and Hamilton corresponded freely about the establishing of a national university as a school for the political training of American youth for the public service. I can only refer to the subject here.

The correspondence between Adams and Jefferson brings to light the education which these eminent men had received, and our acquaintance with their public services and their private life suggests to us some comparisons between their views on education and enables us to understand how three men so efficiently equipped for their work in life as were Franklin, Adams, and Jefferson, contemporaries, colleagues, and associates in several of the most important public services of the century, advocated educational views in conformity with their own individual experience and education in life. Franklin was self-educated, and his plan of education is that all others should do likewise; Adams is college-bred, of ancient New England family, a born politician, a lawyer, a statesman, recognizing different classes in society with interests somewhat discordant, and seeking to establish public education at public expense; Jefferson's educational views resemble Adams's rather than Franklin's, for Jefferson, like Adams, viewed the subject in its legal aspect, though he differed greatly from Adams in his personal interest in agriculture, in mechanics, in invention, and in architecture.

Jefferson's educational views may be gathered from his correspondence, and particularly from his letters written during the last twenty years of his life:

I have long entertained the hope [he writes] that this, our native State, would take up the subject of education and make an establishment there, with or without incorporation into that of William and Mary College, where every branch of science deemed useful at this day should be taught in its highest degree. With this view I have lost no occasion of making myself acquainted with the organizations of the best seminaries in other countries and with the opinions of the most enlightened individuals on the subject of the sciences worthy of a place in such an institution. In order to prepare what I had promised our trustees I have lately revised these several plans with attention, and I am struck with the diversity of arrangement observable in them, no two being alike. Yet I have no doubt that these several arrangements have been the subject of mature reflections by wise and learned men who, contemplating local circumstances, have adapted them to the section of society for which they have been framed. I am strengthened in this conclusion by an examination of each separately, and the conviction that no one of them, if adopted without change, would be suited to the circumstances and pursuits of our country. The example they have set to them is authority for us to select from their different institutions the materials which are good for us, and with them to erect a structure whose arrangement shall correspond with our own social condition, and shall admit of enlargement in proportion to the encouragement it may merit and receive.¹

After this sensible introduction, which contains a wholesome warning against mere imitation in educational establishments and a proper recognition of peculiar local conditions in every individual foundation, Jefferson proceeds to survey the general field of education and to mark out that particular portion to be occupied by the proposed institution in his immediate neighborhood. He considers the subject under three heads: elementary schools, general schools, and professional schools. Under the first head he observes that it is the duty of a government to see that every citizen is educated according to his condition and pursuits in life. He divides the mass of citizens into the laboring and the learned classes, including under the former agricultural labor and handicrafts and under the latter certain skilled labor and technical knowledge. Elementary schools will suffice for the laboring classes. Jef-

¹ Adams's Thomas Jefferson and the University of Virginia, pp. 62-64, freely quoted.

erson notes the fact that a plan was once proposed to the legislature of Virginia to divide every county into hundreds of wards, 5 or 6 miles square, each ward to have its own schools, for the elementary education of the children in reading, writing, arithmetic, and geography. He expresses the hope that this project, once ineffectually attempted, may be resumed "in a more promising form." Passing to the second head, Jefferson remarks that pupils leaving the elementary schools will separate into two classes, for the pursuit of labor and science, respectively. Pupils destined for the latter will go to college, where higher education is afforded by general schools and is specialized in professional schools. The learned class he divides into sections: first, those destined for professional life and, second, the wealthy, who "may aspire to share in conducting the affairs of the nation or live with usefulness and respect in the private ranks of life." Both the learned and the wealthy will require the higher education, but the former will need to specialize and pass from the general to the professional schools.

Jefferson then attempts to classify the branches of useful science, which ought to be taught in the general schools. He groups them under three departments: language, mathematics, and philosophy. In the first department he arranges languages, and history (ancient and modern), grammar, belles-lettres, rhetoric and oratory, and a school for the deaf, dumb, and blind. "History," he says, "is here associated with languages, not as a kindred subject, but on a principle of economy, because both may be attained by the same course of reading, if books are selected with that view." This thought, originally advanced by Jefferson as the basis of elementary education, became in the person of George Long, the classical historian, one of the ideal cornerstones of the University of Virginia. Under the head of mathematics, Jefferson classified the following sciences: pure mathematics, physico-mathematics, physics, chemistry, mineralogy, botany, zoölogy, anatomy, and the theory of medicine.

Under philosophy he grouped ideology, ethics, the law of nature and of nations, government, and political economy. By the term ideology, Jefferson meant simply the science of the human understanding. He borrowed his novel term from a French writer, Count Destutt Tracy, member of the senate and of the Institute of France, whose treatise on the elements of ideology was first published in France in the year 1801, and is reported by Jefferson to have been condemned by Napoleon as "the dark and metaphysical doctrine of ideology, which, diving into first causes, founds on this basis a legislation of the people."¹ This work, which the present generation would probably condemn on other grounds, made a profound impression upon Jefferson, who wished to establish democracy upon a philosophical basis.

PROFESSIONAL SCHOOLS.

Let us observe what Jefferson said to Peter Carr concerning professional schools, the third and last topic of the discussion. To these schools would come those students who propose to make learning their profession and who wish to pursue particular science with more minuteness and detail than is possible in the college proper, which would give simply a liberal education. "In these professional schools each science is to be taught in the highest degree it has yet attained." Here Jefferson discovers the real university idea and at the same time the idea of specialization for a definite purpose. "To these professional schools will come," he says, "the lawyer to the school of law; the ecclesiastic to that of theology and ecclesiastical history; the physician to those of the practice of medicine, materia medica, pharmacy, and surgery; the military man to that of military and naval architecture and projectiles; the agricultor to that of rural economy; the gentleman, the architect, the pleasure gardener, painter, and musician to the school of fine arts."

¹ Jefferson's letter to Colonel Duane, April 4, 1813, given in Adams's *Thomas Jefferson and the University of Pennsylvania*.

TECHNICAL EDUCATION.

Besides the university idea and the thought of these special schools Jefferson, in his letter to Carr, clearly anticipated the modern idea of technical education. He proposed what he called a "school of technical philosophy," where certain of the higher branches should be taught in abridged form to meet practical wants. "To such a school," he said, "will come the mariner, carpenter, shipwright, pump-maker, clock-maker, machinist, optician, metallurgist, founder, cutler, druggist, brewer, vintner, distiller, dyer, painter, bleacher, soap-maker, tanner, powder-maker, salt-maker, glass-maker, to learn as much as shall be necessary to pursue their art understandingly, of the sciences of geometry, mechanics, statics, hydrostatics, hydraulics, hydrodynamics, navigation, astronomy, geography, optics, pneumatics, acoustics, physics, chemistry, natural history, botany, mineralogy, and pharmacy." In this school of technology Jefferson proposed to group the students in convenient classes for elementary and practical instruction by lectures to be given in the evening, so as to afford an opportunity for labor in the day-time. Military exercises were to be required on certain days throughout the entire course for all grades of students. Thus the features of military schools, technological institutes and modern agricultural colleges were associated with the higher education in a people's university, as conceived by Thomas Jefferson.

Of course Jefferson did not expect to realize all at once this educational scheme as proposed to Peter Carr. He urged, as a practical beginning, the establishment of a general school or college, with four professorships, grouping (1) language and history, belles-lettres, rhetoric and oratory; (2) mathematics, physics, etc.; (3) chemistry and other natural sciences; (4) philosophy, which, in his view, included political science. He said these professorships "must be subdivided from time to time as our means increase, until each professor shall have no more under his care than he can attend to with advantage to his pupils and ease to himself." With further increase of resources, professional schools were to be added. Such were the fundamental lines of thought which gave shape to the first project for a University of Virginia, in Jefferson's own neighborhood. Like the preliminary drawings of a great artist, these bold outlines have a permanent interest in the student.¹

By comparison of the educational views of Franklin, Jefferson, and John Adams we conclude that the present public school system of the United States, which is established by the constitutions and laws of the several States, is in conformity with the educational views of John Adams. While it can not be affirmed that he was the sole originator of the system of American public schools, it may be said truly that he is the earliest eminent American statesman who incorporated a provision for such public education, not only in his writings on government but in his political service, and particularly in that clause which he wrote in the constitution of Massachusetts of 1780, providing for a system of education at public expense. Adams at least had the philosophy of education on his side, for he set forth his ideas on the universal principle of the general welfare, approaching the subject from a consideration of the universal character of education; while Franklin approached it from a consideration of the individual, and of the utilities which are resultant from education. Adams, therefore, identifying the interests of education and the interests of the masses, stands among those who founded our educational system. Franklin outlined a method

¹ Adams, "Thomas Jefferson and the University of Virginia," pp. 62-64.

adapted to the wants of individuals, but at the same time dependent upon those individuals for its successful operation. He founded no system of education; he did not identify the operation of his educational plans with the necessity and growth of the State. Self-education may be said to be the natural method of education, this was Franklin's plan. Education at the expense of the State, according to law, so earnestly advocated by John Adams may be called the conventional system, practicable and advantageous in a country like ours. Jefferson took a somewhat higher ground, recognizing that education must be directed by those technically trained to perform its duties. He compared the educational institutions of Europe before he attempted to found the University of Virginia, and sought to incorporate in that University the best of all that he saw abroad that was adapted to the wants of America. He would found an institution in which not only the young might pursue all studies, but also an institution which would provide technical instruction for those who would pursue particular studies at great length. If John Adams is the father of the common school and Benjamin Franklin the model of the self-educated man, Thomas Jefferson is the promoter of the university idea in America.

The influence of the ideas that each of these men advocated is clearly discernible in the educational history of America. We have the public school system, the education of the masses by the masses, John Adams's idea; we have the technical school in the university, Jefferson's idea; and we have the means of self-education, books, business, factories, libraries, learned societies, nature, and the human soul, capable of making use of these opportunities, Franklin's idea. That it may appear more clearly what has been the influence of Franklin's ideas of education in this country, I may conclude my sketch by briefly outlining several institutions which he founded in Philadelphia, or which have developed according to his ideas: The American Philosophical Society, the Library Company of Philadelphia, the Franklin Institute, Girard College, the Philadelphia Manual Training Schools, and the University of Pennsylvania.

The American Philosophical Society dates from the 25th of May, 1743, when Franklin published his famous prospectus for its establishment. It was incorporated by act of the legislature of Pennsylvania, March 15, 1780, as "The American Philosophical Society, held at Philadelphia, for Promoting Useful Knowledge." The language of the act of incorporation describes its functions: "The cultivation of useful knowledge and the advancement of the liberal arts and sciences;" "the prosecution and advancement of all useful branches of knowledge" for the benefit of mankind. The history of this venerable society, the oldest of its kind in the world, is the history of modern science. Franklin was its first president, elected January 2, 1769, and serving until his death. He was succeeded by the eminent David Rittenhouse,

who served from 1791-1796. The other presidents and their terms were as follows: Thomas Jefferson, 1797-1815; Caspar Wistar, 1815-1818; Robert Patterson, 1819-1824; William Tilghman, 1825; Peter Stephenson Duponceau, 1828; Robert M. Patterson, 1845; Nathaniel Chapman, 1846; Robert N. Patterson, 1849; Franklin Bache, 1853; Alexander Dallas Bache, 1855; John Kay Kane, 1857; George B. Wood, 1859; Frederick Fraley, 1880.

Franklin Bache and Alexander Dallas Bache were great grandsons of Benjamin Franklin. Franklin Bache was distinguished as a chemist, as professor of chemistry in the Jefferson Medical College, as one of the authors of the Dispensatory of the United States, and of many contributions on cognate subjects.

Alexander Dallas Bache resembled his illustrious ancestor. He was a self-educated man, a graduate of West Point, professor of chemistry and natural philosophy in the University of Pennsylvania, an active member of the Franklin Institute, of which he was a zealous and successful promoter, and first president of Girard College. He laid the plans for the Philadelphia High School, and as its first principal organized it, but won his chief fame as the head of the Coast Survey of the United States. His mind, like Franklin's, was interested in all matters of public concern and he rendered efficient services in a multitude of matters by which his name is intimately associated with many of the most useful enterprises of a private and public nature in the educational affairs of the country.

The American Philosophical Society has enrolled in its membership the most eminent men of the last century in all countries. The records of the Proceedings of the Society shows a multitude of useful subjects which it has from time to time considered. The record of the last meeting at which Franklin presided and of the two meetings that took notice of his death are as follows:

1789. Oct. 2. (6 present; Franklin presiding.)

The Royal Irish Academy sent their Transactions, Vol. I. Ordered, That the secretaries send in acknowledgment Transactions American Philosophical Society, Vols., II.

Thos. Pole, of London, sent through his brother, Ed. Pole, of Philadelphia, a letter of thanks for election, and "a description and drawing of a remarkable tumor which lately occurred in his practice."

Coal, white vitriol, slate, brick, burnt slate, alum, niter, freestone, and Indian pottery lately found in a bank near Washington were presented through Franklin by David Reddick, esq.

P. Young's Essay on the Powers and Mechanisms of Nature was presented through Franklin by Samuel Mather, of London.

Specimens of the Papyrus of Syracuse were presented by Franklin.

1790. April 23. Special meeting. (19 present.)

To consider of some testimony of respect to the memory of the late illustrious President.

An eulogy voted, to "be prepared by one of their members, to be pronounced before this body as soon as may be convenient."

Dr. Wm. Smith and Dr. Rittenhouse "were highest in votes" by ballot "and had each an equal number."



BENJAMIN FRANKLIN. 1790

From the original in possession of the American Philosophical Society, by permission.

These gentlemen * * * consenting that the said eulogium * * * shall certainly be prepared, it is left to themselves to determine which of them shall deliver it.¹

1790. April 21. Special meeting called by the vice-presidents at 3½ p. m., in the hall; twenty-three members present, who "went in procession to the funeral of their late illustrious president, Dr. Benjamin Franklin."

A list of the papers published in the "Transactions of the Society" is the record of modern science. Among the writers of these papers are Dr. Joseph Priestley, Edw. D. Cope, Robert Hare (the inventor of the blowpipe), Benjamin Franklin, S. S. Haldeman (the eminent philologist), Dr. Harrison Allen, Elias Loomis (the eminent mathematician), David Rittenhouse, Ferdinand V. Hayden, Franklin Bache, John L. Leconte, Dr. Benjamin Rush, Dr. George F. Barker, Dr. S. Weir Mitchell, Joseph Henry, Dr. Caspar Wistar, Henry Phillips, jr., Dr. E. Otis Kendall, Dr. Daniel G. Brinton, Dr. Persifor Frazer, Dr. Edgar F. Smith, Dr. Joseph Leidy, Horatio C. Wood, Alexander Winchell, O. C. Marsh, Franklin Peale, Dr. William Pepper, Edwin J. Houston, John Hechewelder, Thomas Jefferson, Charles Lucien Bonaparte, Henry Draper, B. Henry Latrobe, John W. Draper, Dupont de Nemours, Pliny E. Chase, Dr. George Hays, Joseph T. Rothrock.

Among the papers are Transmission of Acids in Vapor (Priestley), Experiments on Air (Priestley), Air Pump and a New Construction (Hare), Causes and Cure of Smoky Chimneys (Franklin), Encke's Comet (Loomis), Coral Reefs (A. D. Bache), Disease of the Thorax (Wistar), Trial by Jury (Price), Stone Implements in Asia and Africa (Henry Phillips, jr.), Precipitation of Copper with Sodium Carbonate (E. F. Smith), Oxygen in the Sun (John W. Draper), Observations on Jupiter and Satellites (Kendall), Extinct Vertebrae from Nebraska (Leidy), Galvanometer Lantern (Barker), Universal Hyperstacist (William Pepper), Electro-Dynamic Induction (Joseph Henry), Geology of Wyoming and Colorado (Hayden), Cretaceous Fishes of the United States and other papers (Cope), Microscopic Destructions in Woods (Rothrock).²

The hall of the American Philosophical Society, of which an illustration is given, was erected in 1785. The east meeting room overlooks the historic Independence Square, south of the old Statehouse, with whose associations Franklin is identified.

The Franklin Institute of the State of Pennsylvania, for the promotion of mechanic arts, was founded in the year 1824. Its membership numbers about 2,000, and persons of either sex, who are friendly to the object of the Institute, are eligible for election. At its monthly meetings new inventions and processes in the arts and manufactures are

¹ The eulogy was pronounced by Dr. William Smith.

² Subject, Register of Papers published in the Transactions and Proceedings of the American Philosophical Society, compiled by Henry Phillips, jr., a secretary of the society, Philadelphia, MacCalla & Co., printers, Nos. 237-239 Dock street, 1889.

See Proceedings of the American Philosophical Society, November 21, 1889, vol. 27, p. 131; also Proceedings at the Dinner Commemorative of the Centennial Anniversary of the Incorporation of the Society, March 15, 1880; also American Philosophical Society, Celebration of the One hundredth Anniversary, May 25, 1843, pp. 1-232.

shown and described; the papers upon the various engineering, mechanical, and industrial fields are read and discussed; it maintains a library of scientific and technical books and periodicals, containing over 37,000 volumes, 23,000 pamphlets, 20,000 maps and charts, and over 1,000 photographs, classified and catalogued. It is exclusively scientific and technical in character and is steadily increasing in numbers and importance. It embraces, in addition to the standard and current works on mechanics, physics, and chemistry, pure and applied, the publications of the principal scientific and technical societies of the world, files of 400 home and foreign scientific and technical serials, accessible to all members in good standing, and complete sets of British (and colonial), French, German, Austro-Hungarian, Russian, and American patent records open for inspection. It maintains courses of lectures each winter on subjects of a scientific and technical character. These lectures, about 30 in number, are arranged by the general direction of the committee on instruction with the assistance of the professors of the Institute. The course varies from year to year; it is not popular in character, but it is a presentation of the latest advances in those branches of science and the arts for the advancement of which the Institute was founded. Its programme of lectures during the season, 1892-'93, contains, among others, the following subjects and lecturers: Ship Canals (illustrated) by Prof. Lewis M. Haupt; The Genesis and Exodus of Steam, Mr. George H. Babcock; Cheap Power, Prof. H. W. Spangler, University of Pennsylvania, etc. It maintains a drawing school for instruction in mechanical, architectural, and free-hand drawing. Its scientific work is conducted by means of committees, composed of experts in various branches, who give gratuitous aid to inventors and discoverers by examining their inventions and making a report on them to the Institute.

The reports of the Committee of Science and Arts, 1834-1890, are indexed, and an examination of the index shows the comprehensive work of the Institute during the last half century. There is scarcely an invention or a discovery of importance during the last half century which has not been presented to the Franklin Institute and been the subject of a committee report. In recent years the specialization of sciences has caused the Institute to appoint a chemical section and an electrical section, in committee, so that inventions and discoveries in these special departments may receive more particular attention.

The proceedings of the Chemical Section from January to December, 1890, contain papers, *inter alia*, on Electro-Deposition of Platinum, William H. Wahl; The Present Condition of the Philadelphia Water Supply, Samuel C. Hooker; The Action of the Hydrogen-Sulphide Gas upon Metallic Amines, E. F. Kellar and E. F. Smith, and many other papers of importance.

The proceedings of the Electrical Section, January to December, 1891, contain, among others, Electro-Magnetic Machinery, William S. Aldrich; Experimental Analogue for the Direction of Induced Currents, Prof.

L. F. Rondinella; Artificial Rain-Making, Prof. Edwin J. Houston, and many other papers.

These papers may be named as illustration of the high order of work considered by these committees.

The Institute has held exhibitions for the encouragement of the arts and of manufactures, of which, perhaps, the most noted were the Thirty-seventh Exhibition of American Manufactures, held in the city of Philadelphia October 6 to November 12, 1874, and the International Electrical Exhibition of the Franklin Institute of 1884. The utility of these great exhibitions has been demonstrated in their practical effects seen in the innumerable improvements in the arts and sciences for the encouragement of which they were held, and which may be traced directly to these exhibitions.

The Institute publishes a Journal, edited by a staff of distinguished scientists, devoted to the advancement of science and the mechanic arts, and which publishes the most important papers read before the various meetings of the Institute. The Journal, like the work of the Institute, is widely known throughout the world. Lectures and papers read before the meetings of the Institute are reprinted in the leading technical journals of America and Europe.

Mr. Coleman Sellers, president of the Institute, on the occasion of the commemorative exercises at the fiftieth anniversary of its founding, said:

Our Franklin Institute was from the beginning a mechanic's institute in one sense of the word. It taught by lectures, but sometimes by classes, but it was always more than was contemplated by the societies abroad. If I may so express myself, it was, and still is, a democratic learned society; it is not exclusive, no well-behaved person is excluded from its membership; all who desire to reap its benefits or to aid in its great work of promoting the mechanic arts can join it. This is not so with the so-called learned societies of this and other lands; they select their members from among those who have already distinguished themselves among the arts or sciences, or are likely to distinguish themselves; hence their membership is confined solely to the learned of the land. Now, mark the difference in our case: learned men join our society, and in this hall come in contact with those who may be unlearned, so far as books are concerned, but better informed in some special art or trade. Theory and practice are brought together; each helps the other. Distinguished scientists admit that they are indebted to this association for information of a practical character, probably not obtainable otherwise.

I need not say that all this is in keeping with Franklin's ideas in education; it is the *junto* in science. Perhaps no better illustration of the work of the Institute can be given than to present the proceedings of one of its stated meetings.

THE FRANKLIN INSTITUTE.

[Proceedings of the stated meeting held Wednesday, October 19, 1892.]

HALL OF THE FRANKLIN INSTITUTE,
Philadelphia, October 19, 1892.

Mr. Henry R. Heyl in the chair.

Present, 190 members and 22 visitors.

Additions to membership since last report, 5.

The secretary reported the resignation, from the committee on science and the arts, of Dr. George A. Koenig. An election was ordered to fill the vacancy.

Mr. Shaw nominated Mr. F. M. Jacquith; Prof. Roudinella nominated Mr. F. Lynwood Garrison. Mr. Garrison received 42 votes, and Mr. Jacquith 12. Mr. Garrison was accordingly declared elected.

Mr. F. E. Ives read a paper descriptive of the principles of construction and operation of the heliochromoscope, a new optical instrument of his invention for the reproduction of natural colors in photography. The speaker at the close of the meeting exhibited a photograph of a bouquet of natural flowers in the apparatus, by means of which the natural colors of the objects were very faithfully reproduced. Mr. Ives's paper was discussed by Messrs. Goldschmidt, Fullerton, Cooper, and the secretary. The paper was referred for publication.

Mr. S. Y. Buckman described an automatic tin-plate machine of his invention, and in connection therewith gave a sketch of the present state of the art of making tin plates. The machine of Mr. Buckman takes the pickled sheets (which are longer than those used in the usual method of hand-dipping), and successively and continuously performs the operations of scouring, drying, joining, fluxing, and coating, and turns out the product in a continuous strip of terneplate of any desired length. (Referred for publication.)

Mr. W. E. Lockwood described the Boyer railway speed recorder and an improved smoke and spark-consuming device in locomotive practice.

The secretary in his monthly report referred to the present condition of the Nicaragua Canal enterprise, and presented an abstract of the proceedings of the recent national Nicaragua Canal convention, held at St. Louis, in which the project was cordially indorsed.

Mr. Shaw moved that the president be empowered to appoint a committee of three to confer with a similar committee to be named by the Manufacturers' Club, with the object of preparing a statement embodying the views of the two bodies for transmission to the Department of State. Carried.

Adjourned.

WM. H. WAHL, *Secretary*.

The journal at present numbers 132 volumes, 1826-1892, and is a most valuable record of the progress of science during the last half century in this country. Before the meetings of the Institute are read papers on important scientific and technical subjects, which are discussed, and if of unusual interest are published.¹ The educational work of the In-

Bulletins of the Franklin Institute: Franklin Institute Announcement and Programme of Lectures, 1892-'93.

The Report of the 27th Exhibition of American Manufactures, held in the city of Philadelphia October 6 to November 12, 1874, by the Franklin Institute, Philadelphia, 1874.

Official Catalogue of the International Electrical Exhibition, Franklin Institute, 1884.

Commemorative Exercises at the Fiftieth Anniversary of the Franklin Institute, Philadelphia, 1874.

Proceedings of the Chemical Section, Franklin Institute, Vol. II, 1890.

Proceedings of the Electrical Section of the Franklin Institute, Philadelphia, 1892

Index of Reports of the Committee on Science and the Arts, 1834-1890, published by the Franklin Institute, Philadelphia, 1890.

The Journal of the Franklin Institute, July, 1892.

Bulletins of the Franklin Institute, 1892.

Franklin Institute Announcement and Programme of Lectures, 1892-'93.

stitute has recently been the subject of exhaustive examination by the Hon. W. T. Harris, United States Commissioner of Education, and is set forth by him in his Report.¹ When, in 1824, the charter for the Franklin Institute was obtained, the name of Franklin naturally suggested itself as the fittest to describe the purpose of the founding of the institute. Of its founders, Prof. Keating, professor of chemistry in the University of Pennsylvania at that time, was perhaps foremost, and demonstrated that the Franklin Institute owes its existence to the labors of men who, as professors in the University of Pennsylvania, were well qualified to lay the foundation of such a noble work. While the Franklin Institute is not an offshoot of the University of Pennsylvania, it was founded by University men, and has always enrolled in its professional staff and among its most active members eminent scientists connected with the University of Pennsylvania. I might say that the Institute has always pursued the methods laid down by Franklin in its scientific researches, methods which, however varying, may be called comparative. To-day the medal of the Franklin Institute, whose design is a bust of Benjamin Franklin, is given in recognition of the most valuable discoveries and inventions, and to receive it is to receive the highest authoritative recognition of merit that can be obtained in this country.

It will be remembered that Franklin drew up a plan for improving the condition of the free blacks, and also for the instruction and care of orphan children.² These are to be found in the "Hints for Consideration Respecting the Orphan School Houses in Philadelphia," and in his letter to Washington concerning the education of the children of the free blacks. It was Stephen Girard, who by will, in the year 1830, first made provision in Philadelphia for the education of orphans by providing that \$2,000,000 should be applied and expended in erecting a permanent college, "sufficiently spacious for the residence and accommodation of at least 300 scholars and the requisite teachers and other persons necessary in such an institution." He provided that—

As many poor white male orphans between the ages of 6 and 10 years as the said income shall be adequate to maintain shall be introduced into the college as soon as possible; and from time to time, as there may be vacancies, or as increased ability from income may warrant, others shall be introduced.

On application for admission a correct statement should be taken in a book prepared for the purpose of the name, birthplace, age, health, condition as to relatives, and other particulars useful to be known of each orphan.

No orphan can be admitted until the guardians or directors of the poor, or the proper guardian or other competent authority, shall be

¹ See Report of the Commissioner of Education, 1890-'91.

² Spark's Life and Writings of Franklin, Vol. II, p. 513. *Idem*, p. 159, Hints for Consideration Respecting the Orphan School Houses in Philadelphia.

given for the entire relinquishment or otherwise adequate power to the mayor, aldermen, and citizens of Philadelphia, or to the directors, or to others by them appointed, to enforce in relation to each orphan every proper restraint, and to prevent relatives or others from interfering with or withdrawing such orphans from the institution.

Preference must be given, "first, to orphans born in the city of Philadelphia; secondly, to those born in any other part of Pennsylvania; thirdly, to those born in the State of New York, and, lastly, to those born in the city of New Orleans."

The orphans admitted into the college shall be there fed with plain but wholesome food, clothed with plain but decent apparel (no distinctive dress ever to be worn), and lodged in plain but safe manner. Due regard shall be paid to their health, and to this end their persons and clothes shall be kept clean, and they shall have suitable rational exercise and recreation.

They shall be instructed in the various branches of a sound education, comprehending reading, writing, grammar, arithmetic, geography, navigation, surveying, practical mathematics, astronomy, natural, chemical, and experimental philosophy, the French and Spanish languages (I do not forbid, but I do not recommend, the Greek and Latin languages), and such other learning and science as the capacities of the several scholars may merit or warrant.

I would have them taught facts and things rather than words and signs. And especially I desire that by every proper means a pure attachment to our republican institutions and to the sacred rights of conscience, as guaranteed by our happy constitutions, shall be formed and fostered in the minds of the scholars.

My desire is that all the instructors and teachers in the college shall take pains to instill into the minds of the scholars the various principles of morality, so that on their entrance into active life they may, from inclination and habit, evince benevolence towards their fellow-creatures, and a love of truth, sobriety, and industry, adopting at the same time such religious tenets as their mature reason may enable them to prefer.

Under the terms of this will the college buildings were begun in 1834 and finished in 1847. The institution was opened for pupils the following year. The Girard estate is under the care of the Board of Directors of City Trusts of the city of Philadelphia, and on the 31st of December, 1891, it was reported that Girard College, ground and buildings, had cost \$3,250,000, and that the total expenditure for the college for the current year was \$453,247.20.

Academic work at Girard College is performed by instructors selected with the utmost care, and wherever possible, after competitive examinations. The boys are well clothed and fed, carefully looked after in sickness by skillful physicians and competent nurses, and are, with rare exceptions, happy and contented.

At the close of the year 1891, there were in the college 1,586 boys, as many as can be accommodated or maintained with the present income.

The total number of admissions from the opening of the college in 1848 to the 31st of December, 1891, was 4,720. They leave at the age of 18 years, or younger, and their record during the last forty-four years is highly creditable to the managers of the institution.

President Fetterolf, in his report for December 31, 1891, says:

In the work of training the boys of Girard College, the opportunities are many and the difficulties not few. We have the entire control of the boy. We have him during his hours of play, as well as during his hours of work and study. He spends his Sundays with us as well as his week days, and in most cases the greater part of his vacations.

He loses the benefit of the home surroundings. The softening, refining, and elevating influence of the family fireside can not exist except in the home. To make up for this, as far as possible, is our highest aim. The boy in the institution misses the thoughtful commendations which, in the family, would come to him on his daily return from school, as well as the thousand little words, tokens, and offices of affection which the members of the family are naturally accustomed to give. In the institution boys are taught some lessons not always inculcated in the family, such as punctuality, prompt obedience, habits of system and order. In so large a community of boys as we have in Girard College, there is also taught self-reliance and independence. Living always among so many, and mingling with others of different age, size, and disposition, they are early taught many lessons in bearing and forbearing, such as the boy reared in the private family has to learn later in life.

The president feels that his position is that of the head of a large family as well as principal of a great school, and as such he aims to make the government parental rather than military, on the principle that he governs best who appears to govern least. He desires that the teachers and officers, in the discharge of their daily duties, should mingle with the boys as elder members of the family, whose presence implies respect, confidence, and obedience. There should be mutual sympathy, each having in mind the best interests and welfare of the other, and the result would be order and general good discipline, without having the boy constantly feel that he is being governed. So long as there are offenses, there must be penalties; but we look upon punishments of any kind as a temporary check, rather than as a means of reform. Reformation is brought about by personal appeal, by the power of correct example, and by any other means by which there is implanted in the boy a desire for a better life. Moral delinquencies are generally the result of moral disorders, which, like physical disorders, require individual treatment.

Much is said nowadays in criticism of institution life, and with much of it we fully agree. Every intelligent person will admit that a good home is a better place for a child than the best institution. Neither does the institution aim to be the rival of, or to take the place of, the family. It is only when the family is broken up and the child deprived of its natural protectors by death or otherwise, and the state or charity must come to his relief, that the institution becomes an expedient. It should be remembered, too, that life in the family, in the institution, and in the community depends very much upon the environment, upon the spirit which pervades, upon the companions and friends the child meets. If, in the family, the father and mother and adult members are harsh, cold, and unsympathizing, there will be neither happy childhood nor healthy development of character. If, in the institution, the government and instruction are in the hands of men and women of intelligence, judgment, and force of character, and the children are protected from the corrupting influence of evil companions, they may be expected to grow up to be truthful, honorable, and pure-minded. The most potent influences in the formation of character are example and association. The young can not live in the presence of sin for any length of time and remain untainted; they can not breathe an atmosphere of evil and remain pure. It is for reasons such as these that we should remove from Girard College the vicious, the incorrigible, and the immoral. Evil communications corrupt good manners. The politic, like the body corporate, can only be kept in a healthful condition by removing contagious evils. No institution, no school can afford to keep bad boys. They sow corrupting seed, which spreads rapidly like a noxious weed.

The incorrigible boy should not be neglected, but he should be separately provided for. To permit him to mingle with other boys, young and innocent, is unwise and unjust. Fortunately, the will of the founder is clear and explicit in its provisions on this point.

The course of study in the college covers eight years. It is divided into the instruction of the first, the second, the third, and the fourth schools, the department of English, the department of French, the department of Spanish, the department of natural history, the department of general physics, the department of general mathematics, and the department of graphics. In 1891 the department of electrical mechanics was opened, to which the older and more advanced pupils of the several classes attending the mechanical school are admitted. This new department is in reality a department of manual training; the course in manual instruction covers a period of five years and to the pupils who have spent three or four years in wood working, metal working, foundry and mechanical drawing, the electrical department opens a new and practical field. Of the manual training school in the college President Fetterolf says:

Our manual training school is serving an important mission in teaching boys a proper conception of manual labor. The children of the laboring classes have born and bred in them a distaste for manual labor. Their fathers, and in some cases their mothers, have had to struggle hard to make a living in the sphere of common labor, and they have in their minds only the dark side of the workingman's lot. The sons of workmen, as a class, have no love for mechanical pursuits. They prefer the so-called genteeler occupations of the countinghouse or salesroom. The principal of the Philadelphia Manual Training School states that less than 10 per cent of the boys and young men attending that institution are the sons of artisans. To overcome this prejudice, and to teach boys to see in manual labor opportunities for the exercise of skill and intelligence, is no small part of the work of the teacher of manual training.

The course of study reminds one of the sketch for an English school outlined by Franklin. Probably no school in existence conforms more closely to Franklin's idea of preparatory education than Girard College; it is not known that Stephen Girard was influenced particularly by Franklin's ideas in education. William Duane, who drew Girard's will, was a grandson of Franklin, and it may be possible that the kind of education which Girard sought to foster in his college may have been made clear to him by his conversations with Duane. There is nothing on record, so far as we know, that will enable us to trace any close connection between the ideas of Franklin and the ideas of Girard. There is, however, the influence of environment, and Girard, consciously or unconsciously, shows the effect of that influence in the great institution which he founded.

It will be noticed that Girard limited the benefits of his generous foundations to white male orphans; as yet no similar institution exists in which children of the African race can receive their education. We think, had Franklin been planning Girard College, he would not have

excluded any race from the benefits of its instruction. In Mr. Coleman Seller's address, already referred to, he said:

Our common-school education gives us traders, gives us shopkeepers, but it gives us no artisans. I know not if this can be remedied, but I do know we need some other training for our sons and our daughters.

Since this was spoken in 1874 the city of Philadelphia has established manual training schools; at present, three in number.

The Central Manual Training School was organized in 1885, the North-East Manual Training School in October, 1890, and the James Forten Elementary Manual Training School in October, 1891. These schools are part of the public school system of Philadelphia, and are maintained by public taxation. The course of study in the Central Manual Training School is distributed over three years, with an optional fourth. These schools are, perhaps, of chiefest historical interest in this place, when we consider the ideas of education suggested by Franklin and by John Adams. They are the first schools which combine Franklin's and Adams's ideas—the instruction of the book and industrial training. In his order of studies Franklin provided a modern curriculum by which the scholar passed from one group of studies to another. In the manual training schools the student approaches literature,* history, and government, science and mathematics, alternately with drawing and shop work. It has been found by experience in these schools that the alternation from the shops (laboratories) to the recitation rooms rests the students; they are enabled to develop harmoniously the various faculties which they possess. The habit of observation engendered by the work in the shops is of itself valuable training, and is after Franklin's plan.

It will be remembered that he did not limit the scope of education to the preparation of artificers. In his plan for an English school he said:

Thus instructed, youth will come out of this school fitted for learning any business, calling, or profession, except such wherein languages are required; but unacquainted with any ancient or foreign tongue, they will be masters of their own, which is of more immediate and general use, and withal will have attained many other valuable accomplishments; the time usually spent in acquiring those languages, often without success, being here employed in laying such a foundation of knowledge and ability as, properly improved, may qualify them to pass through and execute the several offices of civil life with advantage and reputation to themselves and country.

Franklin's ideas of education, based upon utilitarian philosophy, are well illustrated in the public education now afforded in the Philadelphia manual training schools. I have no doubt that they are the outgrowth of Franklin's ideas.

Heretofore [says the principal of the Central school] men have cultivated their brains at the expense of their hands, while those who worked with their hands

*Seventh Report of the Manual Training Schools, pp. 117, 118, in Report of the Board of Education, Philadelphia, 1892. Report of Principal W. L. Sayre.

lacked the opportunity of cultivating their minds. The busy world to-day demands the combination of both, and it is the aim of the manual training school to meet this want.

The records of the graduates of the school, as well as of those pupils who have been under its influence a shorter time, fully warrant the claims of the advocates of manual training as to its practical value in gaining a livelihood.

Of the 263 graduates, fully 70 per cent are engaged in those industrial pursuits in which a high order of intelligence as well as skill of hand is required. They are variously engaged as electricians, architects, chemists, dentists, draftsmen, engineers, makers of optical and mathematical instruments, plumbers, machinists, carpenters, etc. Twenty-five per cent are in higher institutions of learning, and the remaining 6 per cent are in business for themselves or with their parents, or are engaged as clerks or bookkeepers.

The boys who have completed its course of study are equipped as builders, engineers, founders, machinists, architects, designers, manufacturers, electricians, draftsmen, road builders, contractors, chemists, plumbers, lithographers, superintendents of manufacturing plants, stationers and engravers, etc.; while many are engaged in the study of law and of medicine, and of civil and mining engineering. Manual training is in its course of development, and doubtless will in time assume a definite place in the educational programme of the country. As has been said, it illustrates a happy combination of the ideas of Franklin which tended toward the material education of artificers and of men who would know facts and things rather than signs and words, and the education of the mere book man, whose knowledge of philosophical principles is, perhaps, less likely to supply him with bread and butter.

The Philadelphia manual training schools are the most perfectly equipped of any in the country which are under the control of the directors of the public schools. Happily, there is no discrimination in them against persons of any race or color; they are free public schools, and are carrying out the educational ideas of Franklin; if we understand his ideas correctly, he would favor that expenditure of money in the education of the masses which will enable them to earn their living, to be industrious and practical, and who may, by such education, be qualified to "pass through and execute the several offices of civil life with advantage and reputation to themselves and country."¹

Of the University of Pennsylvania the greater part of this book is the record, and the special papers describing the origin, growth, and character of its various departments, carefully prepared by men eminently qualified, set forth the history of that institution clearly and adequately; it fulfills Franklin's idea of education.

The Provost of the University, Dr. William Pepper, has briefly and comprehensively stated the scope of the University² and the history of the institution and of its several schools and departments is related by

¹Conclusion of Franklin's paper on the intention of the original founders of the academy in Philadelphia June, 1789; *supra*.

²Chapter III.



WILLIAM PEPPER, M. D., LL. D., PROVOST OF THE UNIVERSITY.
1881 —.

eminent scholars identified with its work. In these papers may be found the history of the first medical school in America,¹ of the first law schools,² of the origin of our now common four years' collegiate course, of the first school of finance and political economy,³ of the first school founded to investigate the laws of health,⁴ of the first school of American history and institutions,⁵ established in the University in which Franklin stated the course of study should be one adapted "to such a country as our own" and of other schools and departments equally important established and developed with ever increasing influence throughout the country. Not only do these papers show the academic history of the University, but also its relations to the city of Philadelphia⁶ and to the State of Pennsylvania.⁷ The entire life history of this venerable institution is here faithfully told.⁸

The University during the last twelve years has been developed in the various lines according to Franklin's original ideas and has more perfectly realized the large conceptions of its founder. It is interesting historically to observe the conformity of modern educational methods and plans to the plans and methods practiced or suggested by Franklin in the eighteenth century. He was generations ahead of his time. The University is conspicuously among the fruits of his labors, and I can not conclude this sketch of Franklin as an educator in a more fitting way than to give the history of the University of Pennsylvania, more particularly during the last decade, showing how the institution in its multitudinous development has conformed to the living wants of the times and has been, and is, the realization of the University idea.

On the 22d of February, 1881, Dr. William Pepper was inaugurated Provost of the University. Dr. Pepper was born in Philadelphia, August 21, 1843, the son of Dr. William Pepper, a distinguished physician who held the chair of theory and practice of medicine in the University from 1860 to 1864. He graduated in the Department of Arts in 1862 and in medicine in 1864. He entered at once upon the practice of his profession, in which he has achieved the highest distinction both as a practitioner and a teacher. In 1868 he became lecturer on morbid anatomy, lecturer on clinical medicine in 1870, professor of clinical medicine in 1876, and professor of the theory and practice of medicine in 1887. The creation of the University Hospital in 1872 was largely due to his energetic advocacy, his untiring diligence, and his executive ability as chairman of the commission formed for that purpose, and during the successful accomplishment of this great work these qualities became known to the men who were called upon to select a successor to Provost Stillé. Occupied as he was with a very large practice, with

¹ Chapter VIII.² Chapter IX.³ Chapter XII.⁴ Chapter XIX.⁵ Chapter XVIII.⁶ Chapter VI.⁷ Chapter V.

⁸The Historical Sketch of the University by Mr. Stewart brings the history of the institution to the close of the administration of Provost Stillé in 1880. (See chapter IV.)

his duties as a clinical professor, and with contributions to medical literature, his acceptance of the provostship was a serious matter; only after the trustees had given him assurance of the earnestness of their support by changes in the statutes which materially added to the dignity and efficiency of the office did he consent to assume its responsibilities.

The grand scheme of a University proposed by Franklin a hundred and thirty years before was only "a proposal for the education of youth in Pennsylvania," quite forgotten and feebly executed in some of its parts till the administration of Provost Pepper.

Perhaps the phenomenal growth of the University since 1881 is attributable mainly to Dr. Pepper himself, whose mind and methods are remarkably like the mind and methods of Franklin himself. A mind scientific in its prescience, accurate in its application, with reserved powers seemingly inexhaustible, serene in difficulties; boldly original and practical in action; with methods founded on a profound knowledge of human nature; possessing the confidence of the community and using that support as a powerful educational fulcrum; himself foremost in generous gifts to the University, and inspiring a life in the institution which it had never known before. Dr. Pepper since the moment of his succession to the provostship has wrought a unification and an organization of the University which is the concrete expression and the academic proof of the profound sagacity of Benjamin Franklin's plans for a University.

This vast work of unification and organization has progressed systematically, quietly, and efficiently. It has known but one end and aim, the total efficiency of the University. Vast sums of money have been collected and expended in buildings, faculties have been organized, special schools have been founded, and innumerable accessories, tributaries, and parts, related in various ways to the University organization now comprise a functional whole—the University.

Much of the brilliant success of Provost Pepper's administration has been due to the unfailing and cordial support of the trustees and of the professors in all departments. Especial recognition should be given to the earnest and successful labors of the deans of the various departments. The office of dean has been promoted, at Dr. Pepper's especial request, to one of much greater dignity and authority than formerly.

When it was found, in 1881, that in spite of the great influence of the late Mr. John Welsh, then Chairman of the Committee on Ways and Means, and of the activity of Provost Stillé, the enlarged operations of the University, during the date of 1871 to 1881, had resulted in an accumulated floating debt of over \$450,000, it required rare courage to decide upon the continuance of a progressive and liberal policy. The result has proved the wisdom of the decision. When, in 1886, Mr. Welsh died, Mr. Charles C. Harrison, who had been a member of the Board since 1876, was unanimously chosen to succeed him as Chairman

of the Committee on Ways and Means. Mr. Harrison is a graduate of the college department (class of 1862), and from the time of his election as a trustee had manifested the strongest interest in the work and prosperity of the University, and had rendered effective service in several of the standing committees. In the highly responsible position of Chairman of the Committee on Ways and Means he has been unsparing in time, thought, and labor, in guarding the financial interests of the institution, and in aiding to provide the resources for each of its progressive movements. His active interest and large social influence have also had a far wider range. In nearly every enterprise, whether of education or beneficence, which has marked these years of activity, he has been a participant and an influential adviser.

The formal statement of millions collected and spent, of professors elected, of buildings erected, of courses newly arranged, of departments strengthened, or organization conducing to the welfare of the University perfected, fails to present the living power of the University to-day which characterizes its work and its service; since 1881 it has divided public attention with the three older colleges of the country.

In 1884 the academic council was established, consisting of all the faculties, "which shall be convened by the Provost to consider questions relative to the general interests of the University."

The Faculty in Philosophy, organized in 1882, conducts postgraduate studies, and is composed out of the various departmental faculties. In the same year the Central Committee of the Alumni was created, to which is granted the power of nomination of trustees on occasion of every third vacancy.

The ceaseless activity of Provost Pepper is suggested by the founding and equipment since 1881 of the following departments or schools:

(1) The Department of Finance and Economy¹ (The Wharton School), 1881.

(2) The Department of Philosophy, (Graduate),² 1883.

(3) The Department (School) of Veterinary Medicine,³ 1882.

(4) The Department (School) of Biology,⁴ 1883.

(5) The Department of Physical Education,⁵ 1883.

(6) The Department of Archæology and Palæontology,⁶ 1889.

(7) The Department (School) of Hygiene,⁷ 1891.

(8) The Department for Women (Graduate School),⁸ 1891.

(9) The School of American History and Institutions,⁹ 1891.

(10) The School of Architecture,¹⁰ 1891.

(11) The School for Nurses in the University Hospital,¹¹ 1888.

(12) The Veterinary Hospital,¹² 1883.

(13) The Marine Laboratory at Sea Isle City,¹³ 1891.

¹ Chapter XII.

² Chapter XVII.

³ Chapter XV.

⁴ Chapter XIII.

⁵ Chapter XVI.

⁶ Chapter XX.

⁷ Chapter XIX.

⁸ Chapter XXI.

⁹ Chapter XVIII.

¹⁰ Chapter XXIII.

¹¹ Chapter XIV.

Chapter XV.

¹² Chapter XIII.

(14) The Wistar Institute of Anatomy and Biology, 1892; and the University Library building,¹ and extensive collections in archaeology, and in special libraries, 1891.

Of these departments, those numbered 3, 4, 7, 8, 12, 13, and 14 have buildings erected since 1881, and costing in the aggregate, with their respective material equipments, above \$850,000.

In addition to this departmental enlargement of the University during this time new courses have been created:

(1) In the College Department, Courses in Natural History and in Architecture.²

(2) In the Law School, courses in law, constituting a Postgraduate Department.³

(3) The course of the Medical School has been extended to four years, to take effect in 1893—by action of the Board of Trustees, February 2, 1892.⁴ This important action was secured by the personal effort of Provost Pepper, who personally contributed \$50,000 to the endowment fund needed for the sure establishment of the advanced curriculum.

(4) The Dental courses have been extended to three years, by action of the Board of Trustees, January 7, 1890.⁵

(5) The course in the Law School has been extended to three years.

All these organic changes have increased the efficiency of the University, but that efficiency has been still further increased by the creation of several coöperative associations composed partly of trustees and officers of the University and partly of other citizens. These associations are:

(1) The University Lecture Association, established in 1887, through which eminent lecturers are secured, often at large cost, and their lectures made accessible to the students, and, on payment of a small fee, to the general public.

(2) The University Archaeological Association, established in 1889, whose membership is active in adding to the Museum of Archaeology specimens in the American, Babylonian, and Egyptian departments, and in promoting research and publications on the archaeology of these several fields.

(3) The Board of Managers of the Veterinary Hospital, whose functions are similar to those of the Board of the Medical Hospital.

(4) The Board of Managers of the Graduate School for Women, organized in 1890.

(5) The admission of women into the Board of Managers of the University Hospital in 1890.

(6) The organization and associate administration of "The American Society for the Extension of University Teaching," of which Provost Pepper was the projector and first President in 1889, and which is

¹ Chapter XXII.

² Chapter XXIII.

³ Chapter IX.

⁴ Chapter VIII.

⁵ Chapter XI.

chiefly supplied with lecturers from the University staff for the very extensive work in which it is engaged.

(7) Coöperation with other colleges in the establishment in 1887 of the College Association of the Middle States and of Maryland, an association which has had great influence in simplifying the work of higher education in these States.

During the present administration the University has won distinction through the work of members of its faculties and its associates, such as—

(1) An extensive study of animal locomotion by means of instantaneous photography, undertaken by a commission at an expense of \$35,000, and resulting in the publication of some 700 large plates made by Mr. Eadweard Muybridge.

(2) The work and report of the Seybert Commission on spiritualism, published in 1887.

(3) The organization and conduct by another commission at an expense of \$45,000 of an expedition to Babylon, securing an invaluable collection of inscriptions for the Museum, the editing of which is now in progress, and awaited with keen interest by students of Assyriology.

(4) The support and regular publication of University periodicals, issued from the University of Pennsylvania Press, namely: The University Medical Magazine, The Annals of Surgery, The Annals of Hygiene, The Annals of Gynecology and Pædiatry, The Wharton School Annals, The University of Pennsylvania Philosophical Series, The Series in Philology, Literature, Archaeology, Botany and Zoology.

(5) The organization of the American Academy of Political and Social Science by University professors, which issues its "Annals" bimonthly. It is, however, independent of the University.

(6) The Provost's reports, the publication of which was instituted by Provost Pepper in 1883, which give details of administrative work, discussions of University policy, with treasurer's reports appended.

(7) The introduction of seminaries in the Departments of Philosophy, Social Science, Economics, American History and Institutions, in English Literature, Chemistry, etc.

(8) The Institution of the University Chaplaincy, in 1891, by the appointment, at the Provost's suggestion, of University chaplains, chosen from clergymen of various denominations. One of the chaplains, the Rev. George Dana Boardman, LL. D., gave two winter courses of Sunday afternoon addresses in the Chapel of the University: One on the Ten Commandments (1889), the other on the Minor Prophets (1890). The results of this religious work are eminently satisfactory.

(9) The organization of "the University of Pennsylvania Young Men's Christian Association" for the special advantage of college students.

Since 1881 more than 25 acres of land, in addition to that previously

purchased in West Philadelphia, have been acquired by the University as follows:¹

(1) A plot bounded by Woodland avenue, Spruce street, Thirty-sixth street, Guardian avenue, and Woodland Cemetery.

(2) A plot bounded by Woodland avenue, Spruce street, Thirty-sixth street, and city police station.

(3) A plot bounded by South street, the connecting railroad, Marston street, and Thirty-fourth street.

(4) The ground with buildings thereon at the southeast corner of Thirty-fourth and South streets, as well as a plot of ground for the Marine Biological Laboratory at Sea Isle City, N. J.

The buildings erected during Dr. Pepper's administration are:²

(1) The Gibson wing (of the University Hospital) for Chronic Diseases, 1883.

(2) The Nurses' Home, 1888.

(3) The Veterinary College, 1883.

(4) The Veterinary Hospital, 1884.

(5) The Biological School building, 1884.

(6) The University Library building, 1891.

(7) Two pavilions for Maternity Hospitals, 1888 and 1890.

(8) The Mortuary Chapel, 1890.

(9) The Marine Laboratory at Sea Isle City, 1891.

(10) The Laboratory (school) of Hygiene, 1892.

(11) The Hospital for Dogs and other small animals on the veterinary grounds, 1892.

(12) The Central Heat and Light Station, 1892.

(13) The Wistar Institute of Anatomy and Biology, 1892-'93.

The ground bounded by Spruce street, Thirty-sixth street, Pine street, and Thirty-seventh street has been devoted to athletics, has been graded, laid out, and proper buildings erected; and a temporary restaurant building has been erected in the rear of College Hall.

The increase in material equipment in the University during the last decade has effected the teaching force and the attendance of the University; since 1881 both the number and professors and instructors and the number of students has doubled, reaching in 1893 the number of 247 professors and instructors, and of 2027 students.³

¹See accompanying plan of the University grounds.

²See illustrations of these buildings.

³A table is appended showing teaching force and number of students by decades, beginning in 1831 and ending with 1892-'93.

Professors and instructors.¹

Decade ending—	College.	Medicine.	Law.	Dentistry.	Veterinary.	Hygiene.	Total.
1831	9	9	—	—	—	—	18
1841	7	7	—	—	—	—	14
1851	10	11	1	—	—	—	22
1861	13	10	3	—	—	—	26
1871	16	14	3	—	—	—	33
1881	22	47	5	23	—	—	97
1892	81	106	11	36	21	3	255

Students.

1831	125	410	—	—	—	—	535
1841	116	410	—	—	—	—	526
1851	95	466	25	—	—	—	586
1861	140	465	71	—	—	—	676
1871	187	330	62	—	—	—	579
1881	287	436	140	109	—	—	972
1892	614	845	217	153	92	8	*2,055

*Including 92 post-graduate students in residence.

The aggregate value of the grounds and buildings used by the University and belonging to it, exclusive of other realty, is about \$2,500,000; and the approximate value of the material equipment of the various departments, including libraries, museums, apparatus, etc., is about \$600,000, making a total of \$3,100,000. The vested funds of the University amount to \$1,600,000, making a grand total of \$4,700,000.

The benefactions since 1881 to the University and its hospitals have amounted to \$2,500,000.

The greater part of this total estate has been obtained since 1881.

The whole history of the University now culminating in the record of one hundred and fifty years is the conservative but living response to the large plan of its founder.

The lofty title of University was first used in this country when in 1779 it was conferred upon this institution by the legislature of Pennsylvania. It may now be further claimed that the experience of the University of Pennsylvania culminates in the establishment of the fact, of so much importance to our American civilization, that our great cities afford peculiar advantages for the development of universities of the most comprehensive type. There is no doubt that the institutions are now, as never before, potent influences in conducing to wholesome municipal life. They are centers of learning, of practical skill, and of an ever-broadening culture among the people, and the response to their wants is evident from the splendid progress they are making with the aid of private munificence, nor is there doubt that these institutions have scarcely more than passed the threshold of their strength and usefulness.

¹For the attendance, countries represented, etc., 1740-1891, see the statistical tables.

University of Pennsylvania: Table showing attendance from 1740 to 1892, inclusive.

[Number of countries and States, 113; totals, 66,747.]

State or country.	1740-1781.	1781-1791.	1791-1801.	1801-1811.	1811-1821.	1821-1831.	1831-1841.	1841-1851.	1851-1861.	1861-1871.	1871-1881.	1881-1891.	Totals.
Alabama and Mississippi				4	6	61	230	363	326	20	21	30	1,061
Arkansas and Missouri						2	14	41	49	24	23	34	181
Arizona and New Mexico										1		3	4
California								1		10	24	28	63
Colorado, Nevada, and Utah											1	15	16
Dakota, Montana, Idaho, and Wyoming										1	3	8	12
Delaware	1	20	25	43	104	128	70	84	97	115	104	215	1,006
District of Columbia (U. S. Army and Navy)				9	22	58	59	44	31	138	28	58	447
Georgia and Florida (a)		2	21	52	163	198	202	144	99	28	16	33	958
Iowa, Kansas, and Nebraska								1	6	15	33	70	135
Kentucky and Tennessee			13	83	115	45	159	261	218	106	44	90	1,134
Louisiana, Texas, and Indian Territory				1	5	30	54	59	43	27	18	76	313
Maryland	1	37	206	286	185	100	110	134	76	104	76	120	1,434
Michigan, Minnesota, and Wisconsin (b)					87	20	2	3	6	35	47	132	232
New England (c)		6	13	38	45	46	111	124	48	80	105	260	876
New Jersey		15	90	106	221	236	173	195	211	400	482	573	2,702
New York		4	10	29	93	88	123	82	45	91	147	319	1,029
North Carolina and South Carolina		4	81	176	441	483	542	647	555	76	67	62	3,134
Ohio, Indiana, and Illinois					3	25	64	88	72	100	106	263	721
Oregon and Washington										3	7	34	44
Pennsylvania	171	158	443	510	1,279	1,669	1,451	2,366	2,482	4,270	5,992	8,763	29,554
Virginia and West Virginia		3	216	367	1,084	1,156	968	733	344	87	67	76	5,101
Africa (d)								2			1	1	4
Argentina Republic and Uruguay (e)									1	2	3	2	8
Australia and Pacific islands (f)										1	9	17	27
Belgium and Holland											1	1	2
Brazil										4	46	50	100
British Isles (g)		1	1			3	20	8	6	4	20	28	91
British Provinces (h)				8	15	21	33	31	46	42	72	131	399
Central America (i)									1	1	4	72	78
China												1	1
Ecuador, Peru, and Chile									1	12	10	15	38
France and Switzerland							1	2	1	4	9	22	39
Germany and Austria (k)								1	4	3	10	45	63
India									2			1	3
Italy and Spain									2			6	9
Japan											8	27	35
Mexico (m)										2	9	32	43
Norway, Sweden, and Denmark											4	6	10
Russia and Poland							1			1		4	6
Turkey, Armenia, and Syria											12	8	20
Unknown					9								9
Venezuela and Colombia (n)							2	6	6	2	5	10	31
West Indies (o)		1	12	12	3	11	29	37	27	46	104	108	390
Attendance in charity schools, 1740-1876													51,565
Total													15,182
													66,747

(a) Including Cherokee Nation (b).

(b) Including western country.

(c) Including Maine, New Hampshire, Vermont, Massachusetts, Connecticut, and Rhode Island.

(d) Including Liberia.

(e) Including Buenos Ayres.

(f) Including New Zealand and Sandwich Islands.

(g) Including England, Ireland, Scotland, and Wales.

(h) Including Canada, Nova Scotia, New Brunswick, and Prince Edward Islands.

(i) Including Nicaragua, Guatemala, and Costa Rica.

(k) Including Wurtemberg, Prussia.

(m) Including Cuba.

(n) Including New Grenada and South America.

(o) Including Bermuda, Bahamas, Barbadoes, Cuba, Nevis Islands, Puerto Rico, and Haiti.

These notes mean that in the catalogues, besides the names in this list, there are also the names used as given in these notes.

NOTES.—The number 66,747 means year's courses, and not necessarily individuals in attendance. Owing to the varying lengths of courses of study at times during the history of the University, two, three, four, five years, it is difficult, if not impossible, to determine from the records the exact number of individuals who have attended the University from 1740 to 1892. As equipment had to be made during that time for the whole number of students in attendance, whether they remained for entire or for partial courses, the number above, 66,747, represents practically the attendance upon the University. The charity schools, out of which the University grew, as shown in the chapters on Franklin by the editor, and by the papers by Judge Pennypacker and Mr. Stewart, were organized in 1740 and ceased in 1876. From the catalogues extant, from scattering records, and from conservative estimates the attendance in them is stated to be 15,182. This attendance was chiefly from Pennsylvania. The catalogues of the college department before 1806 are incomplete and the attendance in the college during that period is the number of the alumni for the period and is, therefore, about one-half of the actual attendance. It is believed, therefore, that the final total above, 66,747, falls considerably below the real figure were the data accurately known.—EDITOR.



CHAPTER III.

THE SCOPE OF THE UNIVERSITY.

The organization of the University of Pennsylvania has proved itself capable of assimilation and development. Its early form was determined by controversies between the State and the college of 1755, which are described fully elsewhere. From this struggle, which lasted from 1779 to 1791, the University emerged with a charter and organization bearing traces of political and religious concessions. The governor of the Commonwealth becomes by virtue of his office a member and President of the Board of Trustees. This board consists of twenty-four members, in addition to the governor for the time being; they constitute "a corporation and body politic, in law and in fact," with power of continuance by filling vacancies in their number. The spoliative act of Assembly of 1779 sought to enforce religious equality in the board by providing that the senior ministers of the Episcopal, Presbyterian, Baptist, Lutheran, German Calvinist and Roman churches in the city of Philadelphia should be members. Although this provision is not explicitly embodied in the act of 1791, which is the final act of fundamental legislation affecting the grant of rights to the University, it may be asserted that careful regard has always been had for its spirit and intention. At the present time, the board contains representatives of the following religious bodies, named in alphabetical order: Baptists, Episcopalians, Lutherans, Presbyterians, Quakers, Roman Catholics, and Unitarians. It is needless to enlarge upon the further simple statement that denominational considerations have no influence in the policy of the University or in the selection of its officers of instruction.

It is partly due to the location of the University in a large city with abounding opportunities for religious worship, and partly to the absence of any predominant denominational influence, that the official religious activity of the University has hitherto been limited to an obligatory daily chapel service for the College Department only, and an annual baccalaureate sermon to its graduating classes. In 1888 it was provided that graduates of the University who should after graduation have pursued an approved course of study in a theological seminary might receive the degree of bachelor of divinity. At the commencement in 1891 this degree was conferred on three such candidates.

It is impossible to avoid an expression of the hope that ere long funds will be available to realize the cherished plan of a Department of Theology organized upon the highest plane of scholarship and efficiency with a University church upon the grounds, and a corps of University chaplains serving in rotation.¹

The principle of government of the University is by committees whose reports and recommendations are submitted to the full Board of Trustees. As each successive department has been grafted on the central body, a standing committee has been created to exercise supervision over, and to promote the development of the new work.

At the present time the number of these standing committees is as follows:

- (1) On the School of Arts.
- (2) On the Towne Scientific School.
- (3) On the School of Biology.
- (4) On the Wharton School of Finance and Economy.
- (5) On the School of American Institutions and History.

The above in connection with certain additional courses, such as that in architecture, constitute the College Department. These committees often meet in joint session.

(6) On the Department of Medicine and on the Auxiliary Department of Medicine.

- (7) On the University Hospital.
- (8) On the Department of Law.
- (9) On the Department of Dentistry.
- (10) On the Department of Veterinary Medicine.
- (11) On the Department of Physical Education.
- (12) On the Graduate Department for Women.
- (13) On the Department of Hygiene.
- (14) On the Laboratory of Marine Zoölogy.
- (15) On the Museum of Archæology and Paleontology.
- (16) On the University Library.

In addition to these, there are the two great business committees of the board.

- (17) On Buildings, Estates, and Property, and
- (18) On Ways and Means.

All of these standing committees, with the exception of the last one, are appointed annually by the Provost at the January meeting of the board. The Committee on Ways and Means is elected by ballot at the same meeting.

The large size of the board renders it possible to secure the representation of each leading department by one or more men with special knowledge of and active interest in its affairs. This mode of govern-

¹I am happy to be able to announce that on January 1, 1892, a staff of University Chaplains, five in number, entered upon their official duties, which consist in serving in rotation in the conduct of chapel service and in daily attendance at the College Department for consultation with the students.

ment seems eminently adapted to its purposes. The committees are of convenient size. All questions referred can be considered deliberately and thoroughly; if necessary, repeated meetings may be held; the advice or the presence of members of the faculties or of outside experts may be secured; so that the reports made to the Board of Trustees habitually represent the final and united judgment of competent authorities, and such their consideration by the board, though frank and free, usually results in adoption, or at least, in recommittal for further study by unanimous consent. An acrimonious debate or the decision of any important question by a close vote is unknown. It would be accepted as proof that the subject needed further careful and impartial consideration in committee.

The above list of the committees indicates the large and ever widening scope of the work undertaken by the University. It suggests also the large responsibilities assumed by the board.

Doubtless there was a time when the position of trustee of the University was simply an honorable sinecure; but of late years the quickened intellectual life of the community, the increasingly numerous and varied demands upon our great institutions of learning and the closer competition between these latter, have been exacting more and more close attention to the educational and financial interests of the University. Not only from this aspect is it advantageous to have our great educational institutions in large cities. The members of the governing body are able to bestow much more close and constant care than would otherwise be possible. Moreover, under such conditions the services of the highest talent can always be secured in the faculties of the various professional schools, since one can practice his profession actively while holding a professorship. It is unnecessary to dwell upon the many conspicuous examples furnished by all of these schools in our University. Further, an opportunity is afforded to associate in various fields of university work many able men and women who are not members either of the board or of the faculties. It is impossible to overestimate the value of the reinforcement that may thus be secured. The vigorous and elastic organization of the University presents many good illustrations of this principle. For example, the gratifying prosperity of the University Hospital is chiefly due to the fact that from its inception the management has been entrusted to a separate board, containing only a minority of trustees, while the majority comprise representatives of the medical faculty, of the contributors, and of the Board of Women Visitors. It seems clear that if the establishment and management of this important branch of the University work had devolved exclusively on the Board of Trustees it would have been an onerous addition to their large responsibilities.

No less marked has been the success following a similar method of organization for the Museums of Archæology and Palæontology. An association with numerous membership has been formed; and the board

of managers, the council, and the executive committees in charge of the Assyrian, the Egyptian, the Oriental, and the American fields of research and collection, comprise representatives of the trustees, of the faculties, and of the association. No department has shown more gratifying vigor and growth than this.

These allusions indicate sufficiently the relations which the University maintains with the community. The conception which has been formed is that it should be the center of the literary and scientific activity of the city and, as far as possible, of the State; that it should provide ample fireproof accommodation not only for extensive libraries, but for scientific and artistic collections; that these should not only be available to the students of the University but to all scholars and investigators; and, finally, that endowments must be accumulated for the support of such scholars of distinction and for the publication of the original papers produced by them and by members of the faculties.

From the first it was distinctly contemplated by Franklin and the sagacious men associated with him in the foundation of the University that its instruction should be specifically arranged in courses with a view to the subsequent avocations of the students. Unhappily lost sight of at various periods, this has been, on the whole, a leading principle in the development of the University of Pennsylvania. Not until recently, however, has it been possible to embody it upon an adequate scale. When the late John Henry Towne bequeathed a large sum—the largest amount given in this country by any individual to an educational institution up to that date (1875)—it was used as the basis of a Scientific School, to be developed in connection with the original Department of Arts. This opened elective courses, occupying the last two years of the college curriculum, in chemistry, mining, civil and mechanical engineering, etc. The interesting experiment was for some years tried of conducting scientific courses upon these branches from the university instead of from the technological standpoint, but experience has demonstrated that this is a distinction with too serious a difference, and that to be effective as academic curricula or as a preparation for professional careers it is better that these courses should be equipped and conducted in a strictly and completely technical sense. The recent changes in the Towne Scientific School have all been in this direction, and have been attended with obviously good results. Especial importance has attached to the work of the School of Biology, and of the Wharton School of Finance and Economy, which are two of the most original and successful amendments to the College course introduced at the University. At the present time the instruction in the College Department has reached an advanced stage of the elective group system. The student may pursue for four years a course upon the same lines as the old classical curriculum, although the introduction of improved methods has modified the spirit and results greatly for the better, or he may elect out of a great number of possible variations;

for instance, special groups of studies in chemistry, in engineering—civil, mechanical, mining, or electrical,—in natural history, in hygiene, in architecture, in history, in finance, administration, sociology, or law, or in branches preparatory to the study of medicine. The combination of a fully developed system of undergraduate instruction presenting a rich choice of parallel groups of studies, with a full series of professional schools offering themselves as a natural continuation of such lines of college work, has been the most familiar conception of a university in America. To this must be added the more recent school of nonprofessional postgraduate studies which are appropriately enough classed under the faculty of philosophy. It is but an arbitrary line which divides these courses leading to the degree of Doctor of Philosophy from what are commonly regarded as professional courses, since in a majority of cases, the former are pursued as a preparation for the profession of teaching, or of letters, or of journalism. No good reason appears why, at least in the case of the first of these, the entrance should not be guarded by the exaction of a suitable professional degree. A glance at our faculty of philosophy and our list of professional schools will show how extensive, and yet how symmetrical has been the development of the University in this direction.

The School of Medicine was opened in 1765 by Dr. John Morgan, that of Law in 1791 by Justice James Wilson, and each was the first upon that special subject in America. As each successive school has been added, that of Dentistry, of Veterinary Medicine, of Finance and Economy, of Biology, of Hygiene, of American Institutions and History, it has either been the first fully organized Department of the kind established in connection with an American University, or it has quickly taken the first place as regards equipment and organization.

Reference is made with conscious and justifiable pride to the record of each of these schools as presented in the chapters devoted respectively to them.

An undoubted danger exists in the case of universities seated in large cities from the very facility with which new and tempting subjects of advanced study are ingrafted, new fields of scientific exploration and collection entered upon, even new departments countenanced or commenced, in dependence upon the enthusiasm, possibly temporary, of a few experts and in advance of the reception by the trustees of endowment funds adequate to permanent maintenance. There is a fascination about new subjects which tempts to a diversion of attention and energy. So that in spite of the well deserved prominence now accorded to graduate courses whether strictly professional or not, it must be held strictly in view that in our American system the rank of a university will for a long time to come be determined largely by the quality and quantity of its undergraduate work.

It is a source of constant gratification to the friends of the University of Pennsylvania that such extensive and thorough work is done in the

college despite the limited amount of endowment yet acquired for that department. This result is of course chiefly due to the faithful and devoted labors of the college faculty. No educational institution can thrive unless the standard set for the faculties is a very high one, not only as regards personal character and attainments, but as regards actual teaching power and active personal interest in the success of their respective departments and in the progress of the individual student. It has always been the policy of the University to entrust to each faculty, and to the college faculty fully as much as to any other, a large share of authority and responsibility in dealing with all questions pertaining to its department. Indeed, formerly the Medical and Law Schools were in large measure independent institutions. But of recent years important organic changes have been made which have resulted in unifying the entire University, the administration of which is now simple and uniform.

Allusion has been made to the standing committees of the trustees upon each department. The connection between these committees and the faculties is effected by the deans and the provost. The dignity and influence of the office of dean have been enhanced. Formerly there were marked differences between the various faculties in this respect; but recently the office has been made one of trustee appointment, so that the deans are associated with the provost as official channels of communication between the trustees and the faculties. The advantage of this seems obvious. The most accurate and impartial man in the office of provost may well have his judgment warped or his information upon some point or other incomplete, and this danger is greatly lessened by having the benefit of the deans' presence at the committee meetings where professional appointments and important questions of policy or expenditure are under discussion.

The general supervision of the buildings of each department, as well as the appointment and direction of all employés, devolve upon the respective deans. In the absence of the provost they preside at faculty meetings. They are expected to be thoroughly familiar with the efficiency of each professor's work, and to report thereupon to the provost as often as may be desirable. All questions of discipline come under the direct jurisdiction of the dean. He is aided by an executive committee of the faculty, and in all grave cases the advice of the provost must be sought, and his decision is practically final. It speaks eloquently for the good moral tone of the entire body of students that of late years serious questions of discipline have been of extreme and steadily increasing rarity.

It will be readily gathered from the previous description of the organization of the University that the duties of the provost of the University of Pennsylvania differ widely from those which pertained to the traditional president of an American college. Originally he was in effect the dean of the College Department, with the added duty of pre-

siding at commencements and of conferring all degrees. He did not even attend the meetings of the Board of Trustees nor of its committees.

During Dr. Stillé's tenure of office the provost became a regular attendant at the board meetings and was made the president and presiding officer of all faculties.

These important steps were followed by still more considerable modifications in 1880, when, on the election of the present incumbent to the position of provost, extensive changes were made in the statutes of the University. It has already been stated that the Governor of the Commonwealth is *ex officio* the president of the Board of Trustees; but in fact the absorbing nature of his other official duties has for many years made it impossible for any governor even to take his seat at a meeting of the trustees. — The provost was in 1880 made the president *pro tem.* of the board, with the duty of presiding at all of its meetings and of appointing all committees with exception of that on Ways and Means, which is elected.

The title of provost was after mature consideration retained on account of its historical value and traditional significance. No other instance occurs to us of the use of this title in academic circles in America.

This officer has thus become the chief executive of the institution. His relations with the trustees in the transaction of all business, his position in every one of the numerous faculties and in all of the organizations which owe their existence to the trustees, make it manifestly impossible that he should act as an expert upon all the educational questions which arise, or should attend to the working details of all the departments. He must act as the representative of the entire University in its relations with the community, and must explain and advocate the various educational movements initiated.

Standing between the trustees and the faculties he must in a peculiar sense, and despite the vast importance of the committees of the board and of the newly developed deanships, possess the confidence of the board, the faculties, and the alumni as a fair and impartial administrator whose sole object is the welfare of the institution over which he is called to preside.

The relations of the University to the State are highly interesting. A careful consideration of the chapter upon this subject in the present volume is especially recommended. It is to be hoped that the ancient historical basis for a cordial and intimate connection between them, the series of liberal enactments by the legislature in behalf of the University, the scrupulous good faith always shown by the latter in the discharge of every obligation connected with these benefactions, will lead to still more close relations, since such will surely be mutually advantageous.

The cordial support of the alumni is indeed an indispensable condition of complete success for the administration of any American uni-

versity. The Board of Trustees has, as is already manifest, acted with great wisdom in voluntarily enacting the necessary statutes to create a central committee of the alumni of all departments and to give to this body the power to fill every third vacancy in the trustees by presenting nominations from which the board elects. The large share in the actual administration thus secured; the further right of the central committee of alumni to appoint special committees to examine and submit reports on the operation of each department, which reports are forwarded to the trustees, and finally the creation of the athletic association, largely under the control of the alumni, which has charge of this important branch of the students' interests, have aroused a deep and active interest among the alumni in all parts which is already producing a happy influence upon the progress and prosperity of the University.

Among the interesting questions which present themselves to every college, and especially to each one seated in a large city, is that of the educational facilities which it should extend to young women. The policy of the University of Pennsylvania in regard to this question is quite definite. It is held to be unwise at present to open the undergraduate classes to the admission of girls as full students and candidates for the B. A. degree. It is unnecessary to enter into a full discussion of the potent reasons which support this view. At the same time there have been for fifteen years certain classes and certain laboratory work open to girls as special students, and the income of a special trust fund has, in accordance with the terms of the gift, been expended to aid such female students as were preparing to be teachers. In 1890 a highly important step was taken by the acceptance of a valuable property immediately adjoining the University grounds as a hall of residence for women students, and by the adoption of a report providing for a graduate department for women.

In May, 1892, this department was opened formally with appropriate ceremonies. Eight fellowships were offered for the year 1892-'93. It is hoped that the establishment of this department which will open to women all the courses of advanced study in the faculty of philosophy with the opportunity of acquiring the highest academic degree (Doctor of Philosophy) will be found to solve the important problem of providing University teaching for women and thus to prove a most valuable advance in educational methods.

The original design of the University of Pennsylvania was that it should be the center of the higher educational system of the State, with a series of colleges established at various points, all of which should maintain an organic connection with the University. Political dissensions and the lack of a vigorous policy on the part of the University soon rendered it highly improbable that this would ever be fully realized. But it remains true that, owing to the official position of the Governor as the president of the University, and owing to the numer-

ous weighty obligations assumed and regularly discharged by the University, this corporation should be regarded as in strict sense a State institution and should be entitled to corresponding treatment by successive legislatures.

The relations of the University to the City of Philadelphia are peculiarly interesting, owing to the arrangement effected in 1882, by which in return for a tract of ground of but little value to the city, but absolutely essential to the future development of the University, 50 prize scholarships were established in perpetuity to be awarded to students of the public schools of Philadelphia. This arrangement is working most happily. The award is made on the reasonably fair basis of the graduation averages of students from the Central High School and the Central Manual Training School, so that these valuable prizes actually serve as powerful stimuli to the entire body of scholars in all grades of the public schools of the city. Important obligations to the city as well as to the State have also been assumed at various times by the University Hospital. The University has covenanted to maintain a free library of reference open to the public. By far the larger portion of the 42 acres owned by the University is held under conditions which forbid its mortgage or sale. The new Department of Hygiene will be the natural center of all work connected with the sanitary interests of the city.

It is true that in accordance with legislative enactments the educational buildings of the University, and such of its grounds as are actually used for educational purposes, are exempt from taxation. It is probable, however, that in the future the value of the public services rendered by the University, and the heavy charges imposed by them upon funds which are wholly devoted to maintaining a high standard of education for the benefit of the community, will lead an appreciative city and State to make annual appropriations to the University as an equivalent. It is also not impossible that with the growth of the University property and population in West Philadelphia there will be elected to the city councils and the State legislature direct representatives of this important constituency.

The future greatness of the University of Pennsylvania was determined when the additional extensive tracts of ground were secured in 1872 for the hospital, and in 1882, 1888, and 1889 for the general purposes of the institution. The one barrier to its complete development was then removed. Let no university seated in a large city imagine it can succeed supremely without ample space. The acquisition of this territory has enabled us to develop such departments as the library, the museums, the School of Veterinary Medicine, the School of Biology, the Laboratory of Hygiene, the Wistar Institute of Anatomy, and to reserve ground for others whose development is now only a question of time. It will enable us to accept, and our ability to accept will often determine the direction of such gifts, important trusts which involve the erection of separate buildings, so that the foundation shall be largely

an independent one, bearing the memorial name designated by the donors. It will enable us to provide dormitory buildings which will secure absolutely good sanitary conditions and the proper amount of supervision for students in residence.

It has permitted the erection of a great central station to provide all the university buildings with heat and electric lighting and forced ventilation and to serve at the same time as a model school of mechanical and electrical engineering.

It has permitted us to place at the disposal of the athletic association the use of a fine large field, and to assign a good site for a complete gymnasium.

Finally, it affords the opportunity for the alumni to construct on the grounds of the University a splendid memorial hall where in all future time the ceremonial functions of the University may occur, and where the swelling ranks of the alumni will muster year after year to attest their loving devotion to alma mater whose grand growth in power and prosperity and influence so largely depends upon their loyal support.

CHAPTER IV.

A HISTORICAL SKETCH OF THE UNIVERSITY.¹

1740-1881.

By the middle of the eighteenth century the Province of Pennsylvania had reached a point in its development where it was necessary to consider what was to be done to secure a pervading and sustained intellectual activity within its borders. The men of that day and age had the practical conviction that progress does not consist in material prosperity but in spiritual advancement. Education had not been overlooked in the policy of Penn. In his Frame of Government we read:

* * * The governor and provincial council shall erect and order all public schools, and encourage and reward the authors of useful sciences and laudable inventions in the said province. * * * And * * * a committee of manners, education and arts, that all wicked and scandalous living may be prevented, and that youth may be successively trained up in virtue and useful knowledge and arts.

The first movement to establish an educational institution of a high grade was in the action of the Executive Council which proposed, November 17, 1683, "That Care be Taken about the Learning and Instruction of Youth, to wit: A Scbool of Arts and Sciences." It was not until 1689, however, that the "public Grammar School" was set up in Philadelphia. This institution, founded upon the English idea of a "free school," was formally chartered in 1697 as the "William Penn Charter School." It was intended as the head of a system of schools for all, rather than a single school for a select few, an idea which the founders of the Charitable School, fifty years later, had also in mind—an idea which was never carried out in the history of either institution.

The failure of Penn's scheme of government, and the turmoil during the early part of the eighteenth century arising from the conflicts between different political parties, for a time influenced very decidedly educational zeal in the province. The government, which at the outset had taken such high ground on the subject, ceased to exert itself in behalf of education, and the several religious denominations and the people themselves in neighborhood organizations took up the burden and planted schools as best they could throughout the growing colony. As a result of this movement we find that in Philadelphia, in 1740, a charity school was established by a number of public-spirited citizens for the instruction of poor children gratis in useful literature

¹For history of 1881-1892 see pp. 195-203.

and the Christian religion. This may be said to be the beginning of the University of Pennsylvania; nine years later this foundation was used for the organization of the Academy. But so far no institution existed in the province for the promotion of higher education. Feeling the importance for some provision to supplement the education then given in the established schools, Benjamin Franklin as early as 1743 drew up a proposal for establishing an academy and endeavored to secure the assistance of the Rev. Richard Peters and other prominent citizens for that purpose. But Mr. Peters was not then in a position to give the necessary coöperation, and, owing to the disturbed condition of affairs in the province and colonies generally, the matter was left in abeyance. In 1749, at the conclusion of peace, Franklin again turned his thoughts to the affair. He secured the assistance of a number of friends,¹ many of them members of the famous Junto; and then published his pamphlet entitled "Proposals Relating to the Education of Youth in Pennsylvania." The pamphlet aroused considerable interest, and the plan as outlined commended itself to a large number of practical men from the fact that Franklin subordinated classical to English studies. He thought "the time spent in that study (Latin and Greek) might be much better employed in the education for such a country as ours." The opinion of most of the original trustees.

On all sides the paper met with great favor and generous support. The result was the organization of a board of trustees, consisting of 24 of those who had subscribed to the scheme of the Academy, with Franklin as president. This body immediately set about to realize the object of the pamphlet, and nourished by subscriptions, lotteries, and gifts the Academy was placed in a flourishing condition. The members of the board raised among themselves £2,000, and this sum was afterwards considerably increased by other similar subscriptions. Application was made to the Common Council of the city of Philadelphia for aid, and the following, from a paper drawn up and presented to this body by Franklin, 1749, sets forth the broad and generous objects had in view, and the benefits expected from the institution:

1. That the youth of Pennsylvania may have an opportunity of receiving a good education at home, and be under no necessity of going abroad for it, whereby not only considerable expense may be saved to the country, but a stricter eye may be had over their morals by their friends and relations.

2. That a number of our natives will hereby be qualified to bear magistracies, and execute other public offices of trust, with reputation to themselves and country, there being at present a great want of persons so qualified in the several counties of this province; and this is the more necessary now to be provided for by the English here, as vast numbers of foreigners are yearly imported among us, totally ignorant of our laws, customs, and language.

3. That a number of the poorer sort will hereby be qualified to act as schoolmasters in the country, to teach children reading, writing, arithmetic, and the grammar of their mother tongue, and being of good morals and known character, may be rec-

¹ Especially Tench Francis, Thomas Hopkinson, and Mr. Peters.

commended from the Academy to country schools for that purpose—the country suffering very much at present for want of good schoolmasters, and obliged frequently to employ in their schools vicious imported servants or concealed Papists, who by their bad examples and instructions often deprave the morals or corrupt the principles of the children under their care.

4. It is thought that a good Academy erected here in Philadelphia, a healthy place, where provisions are plenty, situated in the center of the colonies, may draw numbers of students from the neighboring provinces, who must spend considerable sums among us yearly in payment for their lodging, diet, apparel, etc., which will be an advantage to our traders, artisans, and owners of houses and lands.

In answer to this petition the Common Council agreed to give £200 in cash, and £50 per annum for five years, and £50 additional for the right of sending one scholar each year from the Charity School to the Academy. The Charity School occupied the old building which stands in from Fourth street near Arch, known in those days as the New Building. This building had been erected as a place of worship for the celebrated Whitefield, who had been excluded from the churches of Philadelphia, and for the use of other ministers similarly excluded. Almost every religious denomination had been concerned in its erection, and Franklin and Whitefield were among its trustees, who were selected from different sects. When the enthusiasm for Whitefield subsided the trustees found themselves heavily in debt. The lot had been purchased on ground-rent and money had been borrowed to finish the building. The trustees of the newly established Academy made overtures to the trustees of the new building, and mainly through the efforts of Franklin, who was a member of both boards, they were able to make arrangements for a conditional transfer. The negotiations closed with the conveyance of the building to the Academy authorities in December, 1749, on condition that the debt, amounting to nearly £800, should be paid, a charity school maintained, and a large hall for occasional preachers, to be kept open, forever, according to the original intention. These conditions have been complied with; and until 1877 a charity school was maintained and a room kept in the old Academy building for the convenience of itinerant preachers and new congregations. Owing to alterations which had to be made the building was not ready for occupancy immediately, and it was not until January 7, 1751, that the Academy was formally opened in its new quarters by a sermon preached by the Rev. Richard Peters.

The Academy comprised three schools, the Latin, the English, and the mathematical, over each of which was placed a master, one of whom was the rector of the institution. The first rector was David Martin, who died very shortly after his appointment. He was succeeded by Dr. Francis Allison as master of the Latin School and rector, a position which he held for nearly a quarter of a century. The English School was neglected. The other schools were favored, especially the Latin School. In the eyes of Franklin and many of the supporters of the Academy, the English School was the one of chief import-

ance. What we would call a "starving out" process was begun by which the English School was kept in a weak condition, most of the funds going to the Latin School. Seeing that there was a persistent effort making to decry the English School as useless and that the original constitutions of the Academy had not been complied with, Franklin protested a few months before his death in a pamphlet entitled "Observations Relative to the Intentions of the Original Founders of the Academy in Philadelphia." But by 1790 the English School was dragging out a weary existence and Franklin's protest was of no avail. One thing is plain, and that is that Franklin and the friends of the English School had a clearer idea of the nature of the education which the conditions of America required than had those of the trustees who had done all in their power to increase the importance of the Latin School at the expense of the other schools of the Academy. The observations put forward in Franklin's pamphlet do not far differ in tone and emphasis from the arguments which have been urged against the old scholastic system of education.

The success of the Academy was so gratifying to all interested in it that it was determined to apply for a charter. This was granted to the trustees by Thomas and Richard Penn, the proprietors, on July 13, 1753. Desirous at the same time of enlarging the course of instruction, the trustees elected Mr. William Smith teacher of logic, rhetoric, natural and moral philosophy. Mr. Smith accepted the position and entered upon his duties at the Academy in May, 1754. The history of the institution from this date, whether known as the Academy or the College, to 1779 is the history of the life of William Smith. Nothing like justice has been done to the work of that man during the quarter of a century he was connected with the College of Philadelphia. The change wrought in the Academy from the time he became connected with it was indeed very great. To the three schools another, the Philosophical, was added in which ethics, natural philosophy, and rhetoric were taught to advanced pupils by Mr. Smith. This form of organization was preserved for many years, in fact until the College was merged into the University. In the Philosophy School there was for some years a senior and a junior class. Some years before the Revolution mention is made of a freshman class, into which pupils from the Latin School, after due examination, were admitted. The course of instruction at this time was equal in extent to, if, in some instances, not more advanced than that usually pursued in the highest seminaries, so that there was every reason for believing that since the Academy had been placed upon a collegiate basis it should have all the honors and privileges which belong to a college corporation. Realizing the importance of such a step, Mr. Smith and Dr. Allison suggested to the Board of Trustees the propriety of applying to the provincial government for an additional charter, changing the title of the corporation to that of "The Trustees of the College, Academy, and Charitable School of Philadelphia,"

and giving it power "to confer" degrees in arts. On May 14, 1755, Governor Morris granted to the corporation a new charter confirming the first charter and giving powers for instituting a college or "seminary of universal learning," with the customary privilege of conferring degrees.

The Charitable School was connected with the College and the Academy in no other way than that it was under the authority of the same Board of Trustees. The College and the Academy were much less distinct. The College had arisen out of the Philosophy School of the Academy; both were under the same Board of Trustees and both were managed by the same faculty, and the students belonging to the different departments were often mingled together in the same classes. The only distinction was that those pupils who were candidates for degrees were considered members of the College; those who attended merely the English and Mathematical Schools, without pursuing classical or philosophical studies, members of the Academy. After the reorganization in 1755, the Latin and Philosophy Schools were spoken of as the College, distinct from the other schools which formed the Academy. One other important change was the substitution of Mr. Smith for Dr. Allison as the head of the institution, the former becoming the provost, the latter the vice-provost. This change was made in recognition of the great services which Mr. Smith had rendered the Academy in strengthening its work and placing it upon the high basis of a collegiate institution similar to that existing at Cambridge.

The first commencement of the College was held on May 17, 1757, when degrees in arts were conferred on seven young men who had completed their education within its walls.¹ Thereafter the College rose rapidly in importance. The breadth of its plans, associated with the wisdom of its management, obtained for it the support of the neighboring population, and soon it acquired a fame which drew numerous students from distant colonies. From Maryland, Virginia, and the Carolinas it received much support; and even in the West Indies it was preferred to the English universities by many of the planters and residents. The "Plan of Education" to be pursued in the College was prepared by Mr. Smith at the request of Board of Trustees, in May, 1756, and formed for years the basis of the American College system. The period of study extended over three years and comprised readings in Juvenal, Livy, Cicero, Horace's *Ars Poetica*, Quintilian, and the Tusculan Questions. The *Iliad*, Pindar, Thucydides, Epictetus, and Plato's *De Legibus* formed the work in Greek. Mathematics occupied a prominent position in the course of study, and during the last two years considerable work was done in natural philosophy, chemistry, hydrostatics, pneumatics, optics, and astronomy. Ethics and politics, natural and civil law, and history formed a group of subjects to which more than

¹ The names of these earliest graduates were Paul Jackson, Jacob Duché, Francis Hopkinson, Samuel Magaw, Hugh Williamson, James Latta, and John Morgan.

usual attention was given while Provost Smith had the administration of the College in his care. It is safe to say that at that day no institution of learning in America offered a course of study equal in extent and so liberalizing in its influence as did the College of Philadelphia. Both in the advantages it offered and the actual support which it received it was, perhaps, unrivaled, certainly not surpassed, by any of the colleges at that time existing in the colonies. Only two years after the charter was granted the number of pupils in the institution amounted to about three hundred, one-third of whom were members of the College. In the year 1763, according to a statement made by the provost, nearly four hundred individuals were receiving their education in the various branches of the institution under his charge. Fully to appreciate this we must remember the condition of affairs in the colonies at that period. The population was sparse, the country was poor and had just emerged from a long and cruel war which tested to the utmost the endurance of the America people. Such a record as the College shows in that period of storm and stress can only deepen our sense of obligation to the men who were holding up high ideals of intellectual life and endeavor at that time.

At this period of its activity the College took a step that marked the beginning of a new epoch in American educational history. Later in origin than some similar institutions in the older colonies, the College of Philadelphia may nevertheless boast the honor of having established the first medical school in America. Dr. William Shippen was much interested in some such scheme for medical instruction and succeeded in obtaining the coöperation of Dr. John Morgan, one of the first graduates of the College, interested in the institution of a medical school in this city. Dr. Morgan was prosecuting his medical studies in England at the time and succeeded in securing the favor of several influential gentlemen in that country. He returned to Philadelphia with letters to the trustees from Mr. James Hamilton, the Rev. Richard Peters, both former presidents of the board, and from Thomas Penn, the proprietor, strongly advising the adoption of his plan and recommending the doctor himself to their choice as one of the professors. At a special meeting, May 3, 1765, the board approved the scheme and appointed Dr. Morgan to the professorship of the theory and practice of physic. The following September Dr. William Shippen was elected professor of anatomy and surgery; and the organization was afterwards completed by the addition of Dr. Adam Kuhn as professor of botany and materia medica, and Dr. Benj. Rush, professor of chemistry. The first medical commencement was held on June 21, 1768, when ten men were given the degree of bachelor of medicine.

The extraordinary activity of Dr. Smith succeeded in many ways in making the College a prominent institution in the province. Outside of his duties as provost he was an earnest worker in the church, in the field of science, literature, and education, and at times he took an

active part in the discussion of the political and social questions of the day. He sided with the war party against the party of peace, and was never in sympathy with either the political principles or the religious doctrines of the Friends acting with the Proprietaries against the popular party. A long and, at times, bitter controversy arose between the assembly and Dr. Smith. Thrown into Walnut-street jail, in 1758, by the Provincial Assembly for publishing an alleged libel derogatory to its privileges, he undauntedly continued in prison his lectures to his classes, the students going to the jail to meet him. All this naturally tended to bring the College very prominently before the public, and caused it in the end to suffer, along with Dr. Smith and his friends, at the hands of the popular party in the Assembly.

In 1759 Dr. Smith went to England to secure redress at the hands of the Proprietors for the indignities which had been heaped upon him by the Assembly. There he was received with great honor and was given the degree of doctor of divinity by Oxford, Aberdeen, and Dublin. On his return from England, where his mission had been a success in every way, Dr. Smith found that the resources of the College were by no means adequate to sustain the growth which the institution had experienced during the five years which had seen him provost. Local support had been strained to the utmost, and there seemed no possibility of raising any more funds. Dr. Smith assured the trustees of the favorable disposition of influential persons in England towards the College, and it was determined to send him on another voyage across the Atlantic. Furnished with the proper credentials, Dr. Smith sailed for England, where he arrived early in 1762. An appeal was made to the King, to the Proprietors, and to the people of England, setting forth the needs of the College. The response to this appeal by George III, the Penns, and the English people was so liberal that Dr. Smith returned to America with a subscription amounting to over £6,000. Ten years later the trustees set on foot another subscription in the colonies, from which considerable was obtained, mainly through the efforts of Dr. Smith, who added in all about £20,000 to the funds of the College.

The ready response of the English friends of the College was acknowledged in an unmistakable manner. In the answer of the Board of Trustees to the letters of the Archbishop of Canterbury and Dr. Samuel Chandler, an eminent Dissenter, paying a tribute to the work of the College, after expressing its thanks for the attention which the gentlemen devoted to the prosperity of the College, adopted on June 14, 1764, a fundamental rule or declaration, which is as follows:

The Trustees being ever desirous to promote the Peace and Prosperity of this Seminary and to give Satisfaction to all its worthy Benefactors, have taken the above Letter (the Archbishop's) into serious Consideration, and perfectly approving the Sentiments therein contained, do order the same to be inserted in their Books, that it may remain perpetually *declaratory* of the present *wise* and excellent Plan of this Institution, which hath not only met with the approbation of the great and worthy Personages above mentioned, but even the Royal Sanction of his Majesty himself.

They further *declare* that they will keep this Plan closely in their View, and use their *utmost endeavor* that the same BE NOT NARROWED, nor the members of the Church of England or those dissenting from them (*in any future Election to the principal offices mentioned in the aforesaid Letter*¹) be put on *any worse Footing* in this Seminary than they are at the Time of obtaining the Royal Brief. They subscribe this with their names and ordain that the same be read and subscribed by every new Trustee that shall hereafter be elected before he takes his seat in the Board.

Fifteen years later this minute of the trustees, binding themselves to preserve inviolate the original broad and liberal plan of the College, was made a pretext for abrogating its charter and privileges. The political activity of the provost was the means of drawing down upon the College the wrath of the Assembly. Although Dr. Smith was able to sustain his position and was for a time victorious over his enemies, the time came when they were only too eager to overthrow him. The opportunity arrived with the opening of the Revolutionary struggle and the consequent overthrow of the Proprietary Government of Pennsylvania. The provost was well aware of the animus of the Assembly, and that the first effort to crush him would be by an attack on the College. Aside from the unpopularity of Dr. Smith, many of the trustees were known to be unfavorable to the colonial cause; some of them had left with the British troops when Howe evacuated the city. The fact also that the College had been fostered by English liberality, had been largely endowed by the Proprietors, and had even enjoyed the favor of George III, while from the Legislature of the Province it had nothing but neglect, strengthened the feeling that it was strongly attached to the Tory interest. Nevertheless every effort was made to conciliate the new authorities, and no public act was committed which could afford ground for offense. Indeed it is hard at this day to see what fault could be found with Dr. Smith. He threw himself with great energy into the cause of the colonists, wrote pamphlets advocating independence, and preached sermons on the war; these served to carry his name from one end of the country to the other as that of a sound patriot. Invitations were extended to members of the Congress and to the State officials to attend the commencement which succeeded the first meeting of the Continental Congress; the delegates proceeded in a body from the State House to the College. To guard still further against the effects of that political excitement which there was reason to fear might be directed fatally against the College, an effort was made to secure a confirmation of the charter and privileges of the institution by a constitutional guaranty. In the summer of 1776, while the convention of Pennsylvania was engaged in framing a State constitution, as advised by the Congress, Dr. Smith, in company with others interested in cor-

¹ This refers to a portion of the Archbishop's letter, where, speaking of the fact that nearly every religious denomination was represented in the faculty of the College, he remarks that care should be taken to prevent any sect in the future attempting to put the rest on a worse footing than they were at the time of the appeal of the College for funds.

porate concerns, proposed that an article should be inserted in the constitution securing the inviolability of chartered rights. The article was drawn up, introduced by Franklin in the convention, and adopted. This secured to all societies "incorporated for the advancement of religion and learning, or for other pious or charitable purposes," the enjoyment of those rights and privileges of which they were possessed under the former laws of the Commonwealth.

The College was closed during the occupation of Philadelphia by the British, and had in the meantime begun to suffer from the general destructive influences of the war. Its property had depreciated, its funds had been reduced to a very small amount, and altogether the institution was in an impoverished condition. Opened almost immediately upon the departure of the British army, it was not long before a disposition on the part of the public authorities was manifested to interfere in the affairs of the institution. This was shown by a vote of the General Assembly, February 23, 1779, appointing a committee to inquire into the "present state of the College and Academy of Philadelphia, its rise, funds, etc.," and giving the committee power "to send for persons and papers for that purpose." In answer to the questions of the investigating committee, Dr. Smith prepared a long paper, which was inserted in the minutes of the Board of Trustees, giving an account of the origin of the College, the motives and principles of its establishment, the success which had attended its efforts, and the state of its affairs at the time of the investigation. No action was taken by the legislature upon the report of this committee, and it adjourned without making any decision as to the future of the College. But when the 5th of July came, the commencement to be held that day was postponed at the request of Gen. Reed, president of the Executive Council of the State, who informed the trustees that some reason had been advanced in the Council against proceeding at present with the College work. Three days after this the board adopted a resolution which showed very plainly what anticipation they had of the fight in store for them. Upon motion it was agreed that—

As the President of the State has thought proper to inform this Board, through some of its members, that there are certain *legal objections* to the exercise of *some* of their Rights under their Charter, and to advise the not holding a Commencement at the Time appointed, the Board have for the Present deferred holding the Commencement from an Expectation that some mode will be speedily adopted on the Part of the Government to draw such their Rights in Question in a *legal way*, when this Board will take the proper Steps to defend their Charter according to Law.

At the opening of the next session, in the month of September, the affairs of the College were again brought before the legislature in the message of President Reed. In that document Gen. Reed said, referring to the College, that it "appears by its charter to have allied itself * * * closely to the Government of Britain by making the allegiance of its governor to that State a prerequisite to any official act," and that he could not think "the good people of this State can or ought to rest

satisfied or the protection of the Government be extended to an institution framed with such attachments to the British Government, and conducted with a general inattention to the authority of the State."

Following upon this message of the President of the State came the appointment of a committee of five to make further inquiry into the state of the College. This committee made a report, from which two of the members dissented, recommending a bill which should "secure to every denomination of Christians equal privileges, and establish said College on a liberal foundation, in which the interests of American liberty and independence will be advanced and promoted, and obedience and respect to the constitution of the State preserved." Accordingly an act of assembly was passed, November 27, 1779, making void the charters of 1753 and 1755, and providing for the creation of a new corporation to be known by the name of "The Trustees of the University of the State of Pennsylvania."

The report of the September committee, after repeating the charges contained in the President's message, declared that several of the trustees, having joined the British army, stood attainted as traitors, and others had not, by taking the test, qualified themselves legally to fulfill the duties of their office; that the funds of the institution were utterly inadequate to the proper support of an institution of learning, and that the original and fundamental principle of the College, by which it was bound to afford perfect equality of privileges to all religious denominations, had not been fully maintained.

The weakness of the position of the opponents of the College was glaringly apparent in the last charge. In the report of the committee reference is there made to a vote or by-law adopted by the trustees June 14, 1764, where they "departed [*sic*] in the management of the institution from the free and unlimited catholicism of its original founders." On referring to this by-law it is found to be the fundamental declaration adopted by the trustees in regard to the use of the money collected in England by Dr. Smith.

The other charges were just as ill founded. All oaths acknowledging the royal supremacy lost their obligation upon the establishment of the new Government. Furthermore, the oaths which had been exacted from the College authorities were precisely the same as those which had been required of any one called to fill any civil office in the Province prior to the Revolution, and the trustees were therefore in exactly the same position as any one who had ever held office under the Crown. The test oath, which the assembly had enacted, directed that on June 13, 1777, every white person above the age of 18 should take an oath of allegiance to the State; and by another vote on April 1, 1778, enacted that all trustees, provosts, professors, and masters should take the same oath before June 1 of that year or forfeit their offices. As a matter of fact twelve of the trustees, the provost, and all the professors of the College had taken the oath required by law before

June 1, 1778. And by November, 1779, when the charter was taken away, the Board of Trustees had the full quota required by law, twenty-one of whom had previously taken the oath, the three who had not done so being Richard Penn, William Allen, and Dr. Bond. Curiously enough, after all that had been said in support of the abrogation of the College charter, and notwithstanding his alleged disqualification, Dr. Bond was named as a trustee of the new corporation created by the act of 1779, as were also three others, who had not only not taken the oath to the State, but had just before taken it to the King, one of whom had served as chaplain in the British army while it occupied Philadelphia. In addition to all this it is evident that the act of the assembly was unconstitutional, violating the clause of the State constitution which especially forbade the spoliation of property held for the use of churches, colleges, and hospitals. Its illegality is still further seen in holding the corporation liable for the misconduct of a trustee, it being a well settled rule that such misconduct can work no forfeiture of trust. Nor are alleged infractions of a charter to be determined by legislative but by judicial proceedings.

All this illustrates only too well that blindness and perversion of judgment to which the best men are liable when under the influence of violent political excitement. After all is said in extenuation of the action of the assembly, that it was in line with the policy of the State and for such reasons had to be carried through, nothing is plainer than that the entire proceeding was an attempt to destroy the reputation of a set of men for no other reason than they had made themselves obnoxious to the party which at last had obtained control of the State government and was determined to make its new-gained power felt. The act of 1779 was the severest blow ever given the educational interests of the Commonwealth. Up to that year the State had done nothing to advance the cause of higher education and but little for that of elementary education. The College never fully recovered from the blow which came at a very critical period of its history; it is only within our own day that it has shown any signs of taking the place in American education which rightly belongs to it, and which it held before the close of the last century.

The newly established University of the State of Pennsylvania seems to have been ill-favored from the start. Whatever interest there was in higher education in Philadelphia and throughout the province in 1779 was confined almost entirely to those who were attached to the fortunes of the College. Many more resented the treatment which the College had received at the hands of the assembly, as prompted by a spirit of spoliation rather than an effort to reorganize and strengthen the only institution for higher learning in the State. Nor was the time propitious for the establishment of another institution of high grade. Men's energies were absorbed in a great political struggle, fortunes had been destroyed or were in imminent danger of destruction, and many

who desired to assist a new institution found that it was altogether beyond their power. The new University had indeed a struggle for existence. Efforts were made to have the legislature reconsider its action of 1779, and at the session of 1784, in September, the trustees of the College and Dr. Smith, presented a petition asking that so much of the act of 1779 as took away their estates and franchises should be repealed. The petition was reported favorably by the committee in charge, but when the vote was called no quorum was present; the minority left the house, thus dissolving the assembly. Nothing more was done for several years, when on March 6, 1789, a bill was passed repealing "so much and all such parts of an act of general assembly of this Commonwealth passed on the * * * twenty-seventh day of November, in the year of our Lord one thousand seven hundred and seventy-nine, entitled, etc.," and stating in the preamble that the act of 1779 was "repugnant to justice, a violation of the constitution of this Commonwealth, and dangerous in its precedent to all incorporated bodies and to the rights and franchises thereof." The College was thus re-established in its old privileges and franchises with Dr. Smith as provost.

But it was found that there was no room for two rival educational institutions in the city and that the cause of higher education would be advanced by a consolidation of the College with the University. The trustees of both institutions united in an application to the assembly asking that the charters of both might be surrendered and a new corporation created, to be governed by a Board of Trustees composed of an equal number taken from the College and the University. The petition was favorably received, and the assembly, on September 31, 1791, passed an act uniting the University of the State of Pennsylvania and the College, Academy, and Charitable School of Philadelphia, creating a new corporation, to be known as "The Trustees of the University of Pennsylvania."

Upon the consolidation of the legal interests of two old institutions it was found rather difficult to effect a satisfactory arrangement of the internal affairs of the new institution. It was clearly out of the question, owing to the financial condition, to attempt any such expansion as would embrace all the professors and teachers who had been connected with the old College and the short-lived State University; and yet there were reasons why some effort should be made that would include as many of them in the new scheme as far as its purpose would permit. Notwithstanding the difficulty of the plan a reorganization was finally secured which in a measure solved the problem. Excluding the Charitable School, there were to be three "departments"—the Arts, Law, and Medicine. The Department of Arts included five separate schools under the care of six professors and necessary assistants. In the Philosophy School, the nucleus of the College, there were to be two professors, one of Natural Philosophy, the other of Moral Philosophy. The four remaining schools were each to have a distinct professor; the

Grammar School, a professor of Latin and Greek; the Mathematical School, a professor of mathematics; the English School, a professor of English and belles-lettres; and the German School, a professor of German and oriental languages. To fill these six professorships, three individuals were chosen out of each of the former faculties, in conformity with the provision of the act of union by which the trustees were bound to select the officers of the new University equally from the two seminaries. The result was that but two of the late professors were omitted—Dr. Smith, of the College, and Dr. Magaw, of the University; the former, owing to age and infirmities and probably the presence of a little of the old political animosity, quietly withdrew, while the latter, fearing that he might stand in the way of his friend Dr. Andrews, who was afterwards elected vice-provost, declined a nomination. To complete the organization, Dr. John Ewing, who filled the chair of natural philosophy and who had been the provost of the State University, was elected provost of the new institution.

The German School was the outcome of the efforts of the German Society and of the old University authorities to meet the wants of the German population of the State. German had been a prominent study in the College, and in 1785 a professorship was created to carry on instruction in the same tongue throughout the whole University course. The project, though promising success at first, did not succeed. The number of German students in 1785 was 60, being in excess of the number of English students, but the next year it had dwindled down to six. In 1788 the Department was closed, and the same year saw the opening of the German College in Lancaster County, now known as Franklin and Marshall College.

The Law Department, like the Medical School, was the first institution of its kind in America. It was the result of the efforts of the College authorities, soon after the revival of that institution, to provide legal instruction for all those who were desirous of preparing themselves for the profession. In 1790 the Trustees of the College elected the Hon. James Wilson, a member of the board and one of the Associate Justices of the Supreme Court of the United States, Professor of Law. From this dates the birth of the present Law School of the University.

During Dr. Ewing's term as provost there were but few changes, one of the most important being the removal of the University from its old home on Fourth street to a site nearer the center of the city. In 1791 the Legislature of Pennsylvania appropriated money for the erection of a building to be used as the residence of the President of the United States. A lot of ground was bought, situated on the west side of Ninth street and extending from Market to Chestnut streets, upon which was erected what was then considered a very handsome mansion. Though the house had been built expressly for the use of Washington, he never occupied it, as it was not finished until 1797, and

President Adams, declining to receive favors from the Legislature, would not accept it. There being no use for the buildings, they were sold at public auction in March, 1800, and bought by the University for \$41,650, less than half their original cost. After some necessary alterations, the departments were finally transferred to their new quarters in the spring of 1802, where they remained nearly three-quarters of a century. The same year Dr. Ewing died, and it was not until 1807 that his successor was chosen in the person of Dr. John McDowell, who the year before had been elected professor of natural philosophy. Three years had scarcely elapsed before Dr. McDowell was forced to resign through ill health and the trustees were embarrassed whom to choose for his successor. Dr. Andrews, who had been vice-provost for nearly twenty years in the College and in the University, was elected provost in 1810. Owing to ill health, he too was compelled to resign and the Rev. Frederick Beaseley was elected successor in July, 1813.

By the time of the election of Mr. Beasley the condition of the University was far from being satisfactory. Though the Medical Department continued to grow, the College Department received fewer students every year. In 1791 there were but twelve students in the two highest classes of the College, the numbers qualified to be graduated were in several instances so few that it was deemed unnecessary and impolitic to hold commencements, and when the practice of conferring degrees publicly was resumed, it not unfrequently happened that only five or six individuals appeared as candidates for the honors. The institution came to be regarded as a seminary of inferior grade, and undoubtedly had fallen behind many others of which it had enjoyed the unquestioned precedence. In 1810 a reorganization of the College was carried through, doing away with the so-called "schools," and arranging the students into three classes: freshman, junior, and senior.¹ The curriculum was modified and rearranged, and in general made to conform to the new conditions which had arisen since the opening of the century. But in one direction the reorganization seriously weakened the College in that it abolished the last remnant of Franklin's plan for a liberal English education. Up to 1810 the professorship of English and belles-lettres was nominally on a footing with the other professorships, but was in fact regarded as something of so little importance to the University that it could be abolished, and with it went what was left of the English school. In 1817 Mr. Charles W. Hare attempted to revive the Department of Law, which had been neglected since the death of Justice Wilson. Although it was something of a success, the project was abandoned, to be attempted again some thirty years later. The year preceding, the Board of Trustees created a new department to be devoted to the study of natural science. This department was organized with five professors, and annual courses of

¹ Shortly after this a fourth year was added to the college course.

lectures to be publicly delivered were required by the regulations. The course of instruction embraced natural philosophy, botany, natural history, mineralogy, chemistry applied to agriculture and the arts, and comparative anatomy. The support given by the public, however, was not sufficient to compensate for the efforts put forth, the professors were badly paid, and the department soon fell into neglect. It was abolished shortly after the establishment of the Franklin Institute, in 1824, which rendered, it was said at the time, such a department in the University "unnecessary."

Mr. Beasley resigned in 1828, and was succeeded by Dr. William H. De Lancey. During the five years of Dr. De Lancey's provostship a spirit of progress pervaded the University. When he was elected, in 1828, there were but twenty-one students in the College Department, but by 1833 the number had increased to one hundred and twenty-five. Called to other work, he was succeeded by Dr. John Ludlow, who remained in office to 1853. Among the services which Dr. Ludlow rendered the University was the interest taken in the second revival of the Law Department—this time successful—under the influence of Judge Sharswood. Henry Vethake was elected to succeed Dr. Ludlow in 1853, and he in turn was succeeded by Dr. Daniel R. Goodwin in 1860. Dr. Goodwin was instrumental in strengthening the spirit of instruction and bringing about an air of discipline, from the lack of which the University was suffering. A new department, that known as the Auxiliary Department of Medicine, was founded in 1865, through the liberality of Dr. George B. Wood, who provided for its maintenance during his lifetime and its endowment after his death. Owing to his interest in ecclesiastical affairs Dr. Goodwin was led to resign in 1868, when Dr. Charles J. Stillé was elected his successor.

With the resignation of Dr. Goodwin the old régime of University administration came to an end. From Ewing's day down to the election of Dr. Stillé—over three-quarters of a century—the spirit of that administration had been that of the old traditional college. Now and then there had been a little burst of enthusiasm, as under Beasley and De Lancey, only to fall into the old methods, the old ideas, and the old purposes of what was then considered the scheme of higher education in America.

Dr. Stillé had been elected professor of English literature in 1866, and the spirit with which he entered upon his work soon brought him to be recognized as the man who could undertake the reorganization of the University, and make it in fact as well as in name what it pretended to be. The condition of the University was discouraging when Dr. Stillé was elected provost in 1868. The course of study in the College Department was substantially that which had been introduced by Dr. Smith into the old College of Philadelphia in 1755. Several efforts had been made, especially in 1842-'43 through Bishop Potter, to revise the curriculum and give it more breadth, but they resulted in failure,

and were denounced as attempts to "Germanize" our American colleges! One fact alone will illustrate the degree of public interest in the University. For more than eighty years before Dr. Stillé became provost the University had received but one donation, that of Mr. Elliot Cresson of \$5,000, the income of which was to be devoted to aid in the instruction of drawing, a subject which was not then in the University course of study.

The first great change was the revision of the curriculum and the introduction of the elective system of studies. This was proposed in December, 1866, was adopted by the Board of Trustees, and went into operation September, 1867. The board at the same time began to look to the strengthening of the financial side of the University, and appointed a committee, with Mr. John Welsh as chairman, to procure an endowment fund of \$500,000. Unfortunately for the University, Mr. Welsh was called to the Court of St. James and the community did not respond to the appeal for endowment. In the spring of 1868, Mr. Nathaniel B. Brown brought to the notice of the board a plan by which he thought the endowment fund could be completed. He proposed that the city should be asked to sell to the University for a nominal compensation twenty-five or thirty acres of the alms-house farm in West Philadelphia, a portion of which might be used as a site for the erection of buildings suitable for the proposed and enlarged system of instruction including a Scientific School, and that the rest might be sold as occasion should present and the proceeds be paid into the endowment fund. The Board acted immediately upon this suggestion, and at a meeting held in June, 1868, appointed a special committee to inquire into the expediency of procuring a new site for the University buildings.

The results of the labors of this special committee were gratifying to all the friends of the University, although it had not been able to secure as much assistance from the city as had been hoped for. One immediate result was the passage of an ordinance by the city councils granting ten acres of land in West Philadelphia, at \$8,000 per acre. Preparations were made immediately for the erection of the University buildings. Plans for new buildings were prepared by Professor Richards of the University and, after modification to suit the circumstances and the financial condition of the University, were put into execution, and the corner stone of College Hall was laid in June, 1871. Following upon this, March 5, 1872, was the adoption by the Board of a plan to reorganize the Department of Arts and to establish a Department of Science known later as the "Towne Scientific School" in recognition of the gift from the estate of Mr. John H. Towne. In July of the same year, the property at Ninth and Chestnut streets was sold to the United States Government, and additional funds were thus secured for the erection of the College building, which was finished and dedicated the following September.

In 1870 the legislature had appropriated \$100,000 upon the condition

that \$250,000 more should be raised and the entire sum be spent upon a general hospital which was to maintain at least two hundred free beds. In 1873 an additional appropriation of \$100,000 was made for the same purpose upon the same condition. The grant of land which the city had made in 1870 was increased by $5\frac{1}{2}$ acres in 1872, for the erection of the hospital. Four years from the first appropriation by the legislature the hospital was completed, and for the first time in its history the Medical Department had the means of carrying on an important part of its work which had previously suffered from lack of proper clinical facilities.

Another addition to the University was the Department of Music, established in 1877, and intended as a school for advanced students who desired to add to the mere ability to read and perform music a scientific acquaintance with harmony and counterpoint.

As a necessary outgrowth of the scientific work of the Medical Department came the organization, in 1878, of the Department of Dentistry. This department is one which commands the estimation of professional men, and during the twenty-four years of its existence has succeeded in securing a reputation which is second to none in America.

One other important change during the administration of Dr. Stillé was the abolition of the remaining feature of the old corporation of 1753—the Charitable School. All that remained of the old Academy had been abolished many years before, but owing to the conditions surrounding the Charitable School it still remained in existence, not doing by any means the work intended for it by its founders. On May 1, 1877, a committee of the Board of Trustees made a report to that body in which it advised that the school be discontinued on July 1, 1877. They further recommended that the gratuitous instruction to be provided for out of the trust funds held by the University for that purpose should hereafter be given in the College building in West Philadelphia; that until otherwise ordered by the trustees, male indigent students under twenty-one years of age should be admitted to the Department of Arts and the Towne Scientific School, under such regulations as might be framed by the provost for such admission, with the approval of the Committees of the Board of Trustees on the Arts Department and the Towne Scientific School, as admission to either of said departments might require; that the Committee on Buildings, Estates, and Property be authorized and requested to rent the school building on the lot on Fourth street, near Arch street, for such use as they may deem proper, the rent received therefrom to be appropriated for gratuitous instruction. This report was adopted and the Charitable School ceased to exist.

The fourteen years during which Dr. Stillé was provost saw many important changes. No man since William Smith had brought into the office of provost such energy, such zeal for the promotion of the interests of the University and the intellectual life of the community in

which it was situated. No man had a clearer idea of what a university should be, and no man ever labored more faithfully and earnestly to achieve his ideal. When he resigned in January, 1880, everyone who realized what a change had been wrought in the organization of the University during his administration deplored the loss of his services to education.¹

¹In the preparation of this article frequent use has been made of the minutes of the Board of Trustees, Wood's "History of the University," Wickersham's "History of Education in Pennsylvania," Stillé's "Memoirs of William Smith," MacMaster's "Franklin as a Man of Letters," Franklin's Autobiography, Stillé's "Reminiscences of a Provost," Jesse Y. Burk's account of the history of the University in Scharf & Wescott's "History of Philadelphia," and contemporary newspapers. The history of the University from 1881 to 1892 is continued by the editor in Chapter II. See page 195.

J. L. S.

CHAPTER V.

THE UNIVERSITY IN ITS RELATIONS TO THE STATE OF PENNSYLVANIA.¹

The settlement of Pennsylvania being due to the unrest of the members of a religious sect whose advanced thought brought them into conflict with existing conditions in England, and the moral and mental breadth of its founder having led him to offer it as a home, not only for those of his own way of thinking, but for all in that island and upon the continent who had in vain wrestled against intolerance, it was but natural that his province should attract more men of learning than other colonies whose promoters were simply seeking for profit or were bent upon the enforcement of illiberal policies. Therefore it came about that among the early colonists of Pennsylvania there were an unusual number of men of scholarly attainments, some of whom had been doughty champions upon one side or the other in the polemical warfare then being everywhere waged, a struggle necessary for and preparatory to the establishment of the principle that humanity is capable of governing itself. Penn, the founder of a successful state and a practical legislator whose work has stood the test of time, as well as the most conspicuous figure among the colonizers of America, was a student of Oxford University and a profuse writer of books of verse, travel, doctrine, and controversy which made a strong impress upon the thought of his time. James Logan devoted the leisure left to him after attending to the interests of the proprietor to the translation from the Latin of the Cato Major and the Moral Distichs, and he collected a library of rare books which was then unrivaled upon this side of the Atlantic and even now would be considered extraordinary. David Lloyd, a lawyer ready and pertinacious in the discussion of all questions affecting the polity of the province, was equally skillful in the drafting of acts of assembly and the compilation of the laws. George Keith, trained in the schools of Edinburgh, was the author of numerous treatises upon theology and, together with Penn and Robert Barclay of Ury, defended the Quaker doctrines against the assaults of the learned divines of the European churches. Francis Daniel Pastorius, lawyer, linguist, and philosopher, proud of his pedigree and fresh from the public discussion of ab-

¹In the preparation of this paper I have used freely Dr. Stillé's memoir of Wm. Smith and Wickersham's History of Education in Pennsylvania, and I am indebted to Mr. F. D. Stone for calling my attention to the interesting fact that the Constitution of 1776 provided for university education.

struse questions of ethics and government upon the university platforms of the continent, signalized his arrival at Germantown by the preparation and publication in 1690 of his *Four Treatises*, and left for future generations a bibliography in manuscript of the volumes in his library. Ludwig, Count Zinzendorff, of noble lineage and influential surroundings, came with the Moravians, whose leader he was, to the hills of the Lehigh, but was not prevented by the practical duties of looking after the welfare of his flock from writing numerous collections of hymns, sermons, and addresses. Christopher Taylor, familiar with the Latin, Greek, and Hebrew languages, of which he had prepared and published a text-book, had long been the head of a school at Edmonton in Essex. Not only were there many such individual instances of more than ordinary learning, but the sects from which the early population of Pennsylvania was mainly drawn, though they regarded the amusements and adornments of life as frivolities by means of which Satan was enabled to lead souls astray, were nevertheless people of great intellectual activity, finding prolific expression abroad in a flood of publications, and it was not surprising that soon the printing houses of the Bradfords, Keimer, Sower, Ephrata, Franklin, and Bell, the most productive in the colonies, sprang up here to supply their mental needs. A community with such examples before them and permeated with such influences could not long remain without an institution giving the opportunities for the higher education of youth. The frame of government announced by Penn as early as April 25, 1682, provided that the "governor and provincial council shall erect and order all publick schools and encourage and reward the authors of useful sciences and laudable inventions," and directed the council to form a "committee of manners, education, and arts, that all wicked and scandalous living may be prevented and that youth may be successfully trained up in virtue and useful knowledge and arts." At the meeting of the council on the 17th of the eleventh month, 1683, a "school of arts and sciences" was proposed, and in 1689 the William Penn Charter School, still in existence and doing most valuable work, was formally opened. Following the suggestion of the petition of Anthony Morris, Samuel Carpenter, Edward Shippen, David Lloyd, and others, the assembly in its charter granted in 1711 provided for the instruction of "poor children" in "reading, work, languages, arts, and sciences." This school in its successful operation was the forerunner of the University of Pennsylvania, and the later institution had, like its predecessor, its origin in that spirit of broad philanthropy, regardful of the welfare of the lowly, which has ever been characteristic of Philadelphia and has resulted in the establishment of so many of her public institutions.

In 1740 a number of citizens of different religious denominations united in raising subscriptions for the purpose of erecting a large building, to be used as a charity school for the instruction of poor children gratis in useful literature and the Christian religion, and also as

a place of public worship. In addition to the establishment of the school, they had in view the special object of providing a convenient house in which George Whitefield could preach whenever he came to Philadelphia. The lot was purchased on the 15th of September of that year and the building was erected. Subsequently the design was enlarged to include the idea of an academy, and on the 1st of February, 1749, the lot and buildings were conveyed to James Logan and twenty-three other trustees, upon the trust that they should keep a house or place of worship for the use of such preacher as they should judge qualified, and particularly for the use of Whitefield, and a free school for the instructing, teaching, and education of poor children, and should have power to found an "academy, college, or other seminary of learning for instructing youth in the languages, arts, and sciences." The same year Benjamin Franklin, ever quick to catch inspiration from the events occurring around him, published his "Proposals Relating to the Education of Youth in Pennsylvania." He alleges in his autobiography that the foundation of the Academy was due to the publication of this paper and his own subsequent personal efforts. He says:

This I distributed among the principal inhabitants gratis, and as soon as I could suppose their minds prepared by the perusal of it I set on foot a subscription for opening and supporting an academy, * * * avoiding as much as I could, according to my usual rule, the presenting myself to the publick as the author of any scheme for their benefit.

The question may be raised whether this account written many years later is quite accurate. Dr. Caspar Wistar, a contemporary and himself long identified with the work and fame of the University, says in his eulogium on William Shippen (page 21) while speaking of the services of Phineas Bond:

In conjunction with the much respected Thomas Hopkinson he originated the scheme of the college now the University of Pennsylvania.

The trustees, among whom Thomas Hopkinson, Tench Francis, and Richard Peters, with Franklin, appear to have been particularly active and efficient, secured among themselves and their friends an endowment for the academy amounting to £800 a year for five years, and the city gave an additional sum of £100 a year for five years and £200 in cash.

The institution thus established was incorporated by Thomas and Richard Penn, proprietors and governors of the province, on the 13th of July, 1753, under the name of "The Trustees of the Academy and Charitable School in the Province of Pennsylvania." The charter sets forth that it had been represented by the trustees named that for establishing an academy "as well to instruct youth for reward as poor children whose indigent and helpless circumstances demand the charity of the opulent," several benevolent persons had paid subscriptions expended in the purchase of lands and a building commodious for maintaining an academy "as well for the instruction of poor children as others whose circumstances have enabled them to pay for their learning," and that the proprietors, favoring such useful and charitable designs,

the trustees are given power to purchase lands, to receive any sum of money or goods, "therewith to erect, set up, maintain, and support an academy or any other kind of seminary of learning in any place within the said province of Pennsylvania where they shall judge the same to be most necessary and convenient for the instruction, improvement, and education of youth in any kind of literature, erudition, arts, and sciences which they shall think proper to be taught," to sue and be sued, and to have a seal, and to make ordinances and statutes for their government. A confirmatory charter was granted by the same proprietors, dated June 16, 1755, which changed the name to that of "The Trustees of the College, Academy, and Charitable School of Philadelphia, in the Province of Pennsylvania," and limited the power to hold lands to an amount not exceeding £5,000 sterling in yearly value, and gave power to confer degrees and to appoint a provost, vice-provost, and professors. It is thus seen that the plan of the charitable school which originated in 1740 is not only maintained in the deed of 1749 and in both of the charters, but is made an essential and conspicuous feature of the design. It is of importance to call particular attention to this fact, because in all printed accounts of the University heretofore its origin has been assigned to the efforts of 1749, though the movement really began with the subscription, purchase of land and erection of a building for a charitable school nine years before, and the institution is entitled to claim 1740 as the date of its birth and philanthropy as its primary object.¹

By the confirmatory charter of 1755 the Rev. William Smith, M. A., was at the request of the trustees appointed the first provost. He was a native of Aberdeen, in Scotland, and was graduated from the University there, became a clergyman of the Church of England, and coming first to New York and subsequently to Philadelphia, where an article written by him upon "The College of Mirania," had made a favorable impression, he was selected to take charge of the college and academy in 1754. To his intelligence, energy, and activity in its behalf, its immediate and great success was mainly due. He submitted a plan of education, adopted and carried into effect in 1756, more comprehensive, as Dr. Stillé tells us, than any other then in existence in the American colonies.² When in England in 1759 he secured from Thomas Penn a deed conveying for the benefit of the college one-fourth of the manor of Perkasio, in Bucks County, consisting of about 2,500 acres of land, and finding it in debt he went abroad again in 1762, and in two years by indomitable exertion secured, notwithstanding the opposition of Dr. Franklin, who "took uncommon pains to misrepresent our academy," the

¹Rev. Andrew Burnaby, D. D., says in his "Travels Through North America in 1760," third edition, p. 60, "There is also an academy or college originally built for a tabernacle for Mr. Whitefield." * * *

²"This last institution is erected upon an admirable plan and is by far the best institution of learning throughout America."—Burnaby, p. 66.

very large sum of £6,921 7s. 6d. Of this amount Thomas Penn, the chief patron of the college, whose gifts for the purpose during his life equaled £4,500, contributed £500, the king £200, and there were over 11,000 other contributors. In those days the pursuits of men were not so much differentiated as they have since become, and, as might have been expected from one with the acquirements and mental activities of Dr. Smith, his voice was heard and his hand was felt in all the affairs of the province. As a clergyman, he preached fast-day sermons; as an orator, he delivered addresses upon public occasions; he made investigations in astronomy and other sciences; edited a magazine, and, moreover, he was a speculator in lands and an active politician. He was regarded as the exponent of the views of the college and the custodian of its interests, and, while it was benefited by his exertions, it also suffered through the antagonisms he aroused. A churchman and a friend of the proprietors, he cordially disliked and opposed the Quakers, who elected the assembly and controlled public affairs, and the German Mennonites, Dunkers, and Moravians, through whose support they were able to do it. In 1755 he published a political pamphlet in which he denounced the Quakers for being influenced by interest rather than conscience and accused the Germans of sympathizing with the French in their aggressions. He married the daughter of William Moore, president judge of the court of common pleas of Chester County, an aristocratic and influential personage living on his estate at Moore Hall, on the Pickering Creek, twenty-five miles from the city.

On the 23d of November, 1755, Moore, who, besides holding his peaceful judicial office, was a colonel in the militia, wrote a letter to the Assembly saying that he was coming down to Philadelphia with 2,000 men to compel them to pass a law providing means for military protection. His letter marked the beginning of a struggle that shook the whole province, and was fraught with baleful consequences to both Smith and the College. During the succeeding two years numerous petitions were presented to the Assembly charging Moore with tyranny, injustice, and even extortion, in the conduct of his office, and asking that he might be removed. The Assembly, after a hearing which was many times adjourned in order to give him an opportunity to be heard, but which he declined to attend, upon the ground that they had no authority to make the investigation, determined that he was guilty of the wrongs charged. Soon afterwards, October 19, 1757, he wrote and published a paper wherein he fiercely reviewed their action, calling it "virulent and scandalous" and a "continued string of the severest calumny and most venomous epithets conceived in all the terms of malice and party rage." Immediately after the meeting of the new Assembly, composed for the most part of the same members as the preceding, they sent the sergeant-at-arms with a warrant for the arrest of Moore, and of Dr. Smith who was supposed to have aided in the preparation of the paper. Upon

being brought before the Assembly they refused to make a defense, though Moore admitted he had written the paper and declined to retract any of its statements, and it was ordered that he be confined until he should recant, and the address be burned by the hangman. They were given into the custody of the sheriff and were kept in jail in Philadelphia for about three months, "herding with common thieves and felons," but after the adjournment of the Assembly were released upon a writ of habeas corpus. Smith went to England to prosecute an appeal to the Crown, and on February 13, 1760, "His Majesty's high displeasure" was announced to the Assembly at their unwarrantable behavior in assuming power that did not belong to them, and invading the royal prerogative and the liberties of the people. It was a personal triumph for Dr. Smith, but ere long came the Revolutionary war, when his opponents grasped the reins of power, and neither the royal government nor the King himself could render him any aid.

Early in 1779 the Assembly appointed a committee, "To inquire into the present state of the College and Academy," and in July, Gen. Joseph Reed, President of the State, suggested to the trustees that since some of them were under legal disqualifications it would be wise not to hold a public commencement. When the new Assembly met, in September, the President in his message said, with reference to the College, that it "appears by its charter to have allied itself * * * closely to the Government of Britain by making the allegiance of its governors to that State a prerequisite to any official act," and that he could not think "the good people of this State can or ought to rest satisfied or the protection of the Government be extended to an institution framed with such attachments to the British Government and conducted with a general inattention to the authority of the State." A committee appointed to consider the subject reported, recommending a bill which should "secure to every denomination of Christians equal privileges, and establish said College on a liberal foundation in which the interests of American liberty and independence will be advanced and promoted, and obedience and respect to the constitution of the State preserved."

An act of Assembly was thereupon passed November 27, 1779. It set forth that the trustees had narrowed the foundations of the institution and it declared the charters of 1753 and 1755 void. It provided that the estate, real and personal, should be vested in a Board of Trustees consisting of the president and vice-president of the supreme executive council of the Commonwealth, the speaker of the assembly, the chief-justice of the supreme court, the judge of admiralty, and the attorney-general, the senior ministers of the Episcopal, Presbyterian, Baptist, Lutheran, German-Calvinist, and Roman churches in the city, Benjamin Franklin, William Shippen, Frederick A. Muhlenberg, James Searle, William A. Atlee, John Evans, Timothy Matlack, David Rittenhouse, Jonathan Bayard Smith, Samuel Morris,

George Bryan, Thomas Bond, and James Hutchinson, by the name of "The Trustees of the University of the State of Pennsylvania," and directed that confiscated estates of the yearly value of not over £1,500 should be reserved for the maintenance of the provost and assistants and to uphold "the charitable school of the said University." An oath of allegiance to the Commonwealth was substituted for the former one to the Crown, and means were provided to compel a transfer of the property by the trustees of the College to the trustees appointed by the act. This action of the Assembly has been characterized as a simple act of spoliation, and so much of it as took away the estates and franchises of the College was repealed in 1789, upon the ground that it was "repugnant to justice, a violation of the constitution of the Commonwealth, and dangerous in its precedent to all incorporated bodies." Its supporters had succeeded in driving Dr. Smith away from the city, but they had not been able to infuse life into the new University, and though aided by a loan from the State of £2,000 it languished in debt. The effect of the repeal was to renew the College, and in consequence there were two institutions having in view substantially the same objects and seeking the same support. They were united by an act of assembly of September 30, 1791, which provided for the vesting of the estates of both in a board of new trustees, consisting of twelve elected by each and the governor of the Commonwealth, under the name of "The Trustees of the University of Pennsylvania," who were given power "to do everything needful and necessary to the establishment of the said University and the good government and education of the youth belonging to the same, and to constitute a faculty or learned body to consist of such head or heads and such a number of professors in the arts and sciences and in law, medicine, and divinity as they shall judge necessary and proper." The connection of the institution with the State was maintained by providing that the governor should be one of the trustees and that an annual statement of the funds should be laid before the legislature. This final act of fundamental legislation affecting the grant of rights to the University declared that "charity schools shall be supported, one for boys and the other for girls," thus preserving the chief thought which was in the minds of its originators in 1740. The school, intended in its beginning to be a charity, had been enlarged into a college and academy to teach the arts and sciences in 1753, and had now grown into a University, including in its course instruction in law, medicine, and divinity.

The school of medicine was opened in 1765 by Dr. John Morgan, that of law in 1791 by Justice James Wilson, and each was the first upon that special subject in America.

The reservation of confiscated estates in the act of 1779 was the first direct contribution made by the Commonwealth of Pennsylvania to the cause of higher education. The lands so reserved were estimated to be worth £25,000 and in 1785 their annual value was £1,381 5s. 7½d.

By the act of March 19, 1807, the sum of \$3,000 was granted "out of the monies they owe the State" to the trustees for the purpose of enabling them to establish a garden for the improvement of the science of botany and for instituting a series of experiments to ascertain the cheapest and best food for plants and their medicinal properties and virtues.¹ "By act of May 5, 1832, their real estate in the city of Philadelphia was exempted from 'county, poor, and corporation taxes' for fifteen years. A general act which became a law April 16, 1838, exempted 'all universities, colleges, academies—incorporated, erected, ordained, or established by virtue of any law of this Commonwealth with the grounds thereto annexed—from all and every county, road, city, borough, poor, and school tax.' This act received judicial construction in the case of *City of Philadelphia vs. The Trustees* (8 Wright, 360), where it was held that the Medical Hall of the University, occupied by the faculty whose compensation was derived from the proceeds of their respective chairs, was under it exempt from taxation. Section 1 of Article IX of the present constitution of the State provides that the assembly may by general law exempt from taxation 'institutions of purely public charity,' and the act of May 14, 1874, passed in pursuance of this article of the constitution, relieves from county, city, borough, bounty, road, school, and poor tax all 'universities, colleges, seminaries, and academies endowed and maintained by public or private charity.'"

In 1838 the legislature made provision for an annual appropriation of \$1,000 for ten years to each university maintaining 4 professors and instructing 100 students. The University of Pennsylvania received the annual sum until 1843. In that year the appropriation was reduced one-half and the following year it failed utterly. The act of May 11, 1871, extended the power of the trustees to acquire real and personal property and enabled them to hold an additional amount to the clear annual value of \$30,000. In 1872 the State gave to the University the sum of \$100,000 upon condition that it should raise an additional sum of \$250,000, "the entire appropriation to be expended in the erection of a general hospital in connection with said institution, in which at least 200 beds free for persons injured shall be forever maintained," and the following year a further sum of \$100,000 for the same purpose upon the condition that it should raise a like amount. By the act of May 29, 1889, the State made an appropriation of \$12,500 to be paid to the trustees for the erection of a veterinary hospital, upon the condition that they should furnish free of cost "to deserving young men of this State, to the number of not less than twelve in attendance at one time, said young men to be nominated by the governor of the Commonwealth, and in perpetuity free instruction in the art and science of veterinary medicine and surgery." It is interesting to note that this last act of legislation affecting the welfare of the University is one of generosity

¹In Barton's *Compendium Floræ Philadelphiæ* published in 1818 there are numerous references to plants in this botanical garden.



THE MAIN COLLEGE BUILDING FROM THE SOUTHWEST.

upon the part of the State, looking toward enlarged usefulness in the conduct of the institution and the farther extension of its benefits among the people of Pennsylvania, and that the broad-minded and liberal policy adopted by Thomas Penn one hundred and forty years ago has been continued down to the present time. In the language of Gen. John F. Hartranft, himself a distinguished soldier, governor of the State, and president of the board of trustees, in an address at the inauguration of the hospital thus established, this policy is "in keeping with the generosity of the great State which gave this institution its corporate existence, and is to-day, and it is hoped always will be, proud of her offspring, the University of Pennsylvania."

When the impartial historian comes to record the many events in which Pennsylvania has reason to take great pride, not the least of them will be the fact that in her first constitution, that of 1776, she made it a part of the fundamental law that "all useful learning shall be duly encouraged and promoted in one or more universities."



CHAPTER VI.

THE RELATIONS OF THE UNIVERSITY AND THE CITY.

As early as 1743, Franklin, as he tells us in his Autobiography, sketched a plan for a school designed by him to complete the series of those public institutions which he thought essential for promoting the prosperity of the Province.¹ After the plan had been laid aside for a few years, in 1749, having obtained the coöperation of several of his friends, he printed a pamphlet entitled, *Proposals Relative to the Education of Youth in Pennsylvania*, and took care that it should be extensively circulated. A meeting of the most influential citizens having been called, it was decided to organize an Academy, and 24 persons, among the most considerable of the Province, were associated together as a board of trustees to manage its concerns. This was on the 13th of November, 1749. These gentlemen raised among themselves and their friends toward the endowment of the Academy a subscription of £800 a year for five years. The corporation of the city, taking into consideration the numerous advantages the city would reap by such a seminary, voted £200 to be paid at once to the trustees, and £100 a year for five years. Such was the zeal of the trustees to begin their work, that they anticipated the payment of these subscriptions by borrowing for the use of the Academy on their joint bond, £800. They were fortunate in securing for the Academy the building which had been erected a few years before by the admirers of the Rev. George Whitefield. This building was erected for the charity school which was established in 1740, and incidentally to serve as a place of worship when that celebrated man should happen to be in Philadelphia, and need for his ministrations that convenient accommodation which had been refused him in the churches of the city. The enthusiasm excited by Whitefield considerably abated, the building had not been paid for, and an arrangement was made by which the property in Fourth street below Arch street was conveyed to the trustees of the Academy on their undertaking to pay the debt on the building, and agreeing that a portion of it should always be set apart for the occasional use of itinerant ministers. The alterations required to render the building suitable to its new purpose were so expensive that it was not until the beginning of the year 1751 that it was occupied by the Academy. Here Latin was taught by Dr. Francis Allison, English by David James Dove, and mathematics by

¹ See p. 215; also p. 234.

Theophilus Grew. Among the ushers or tutors was Charles Thomson, later the Secretary to the Continental Congress. The building secured, in December, 1749, it was announced that it would be opened by the trustees as "an Academy, wherein youth will be taught Latin, Greek, English, French, and German languages, together with history, geography, logic and rhetoric; also writing, arithmetic, merchants' accounts, geometry, algebra, surveying, gauging, navigation, astronomy, drawing in perspective, and other mathematical sciences, with natural and mechanical philosophy, etc., agreeable to the constitution heretofore published, at the rate of £4 per annum and 20 shillings entrance." On January 8, 1750, the schools were opened by a formal visit from the governor and the trustees to hear a sermon from the Rev. Mr. Peters. The free school was opened in September. In August, Mr. Dove, one of the masters of the Academy, proposed to open a school for young ladies at 5 o'clock in the evening, to continue three hours, "in which," said the proposals, "will be carefully taught the English grammar, the true way of spelling and pronouncing properly, distinctly, and emphatically; together with fair writing, arithmetic and accounts. Price, 10 shillings entrance and 20 shillings per quarter."

The institution thus begun continued to flourish, and July 13, 1753, the proprietors granted it a charter, and from time to time contributed £3,000 in money and lands. On May 14, 1755, an additional charter created the College, Academy, and Charitable School of Philadelphia, with a faculty of the provost, vice-provost, and professors. From that time the College had to deal with the State rather than with the city, but at that time State and city had a much closer relation than at present. As it was not until 1870 that the city and the University were again brought into communication, it may be of interest to refer to the details of the first grant made by the city for the benefit of the institution which was later on to become a College and finally the University. The first charter was granted in July, 1753, and in May, 1754, Dr. William Smith entered on his duties as teacher of logic, rhetoric, and natural and moral philosophy. Under his leadership it advanced so rapidly that at his suggestion the Board of Trustees in December, 1754, applied for an additional charter, and in May, 1755, it became The College, Academy, and Charitable School of Philadelphia, with the privilege of conferring degrees. The services of Provost Smith have been admirably set forth in an exhaustive address by one of his successors, Provost Stillé, whose own service in behalf of the University naturally recalls the great work done by Dr. Smith. Philadelphia may well point with pride to the succession of able men who have followed Provost Smith in the important and responsible post to which its first occupant gave such dignity by his position among his fellow citizens. In the "Minutes of the Common Council of Philadelphia, 1704-1776," Philadelphia, 1847, p. 524, under date of July 30, 1750, is the following record:

At a Common Council held at Philadelphia for the City of Philadelphia the 30th day of July, 1750. Present: Thomas Lawrence, Esqre., Mayor; William Allen, Esqre., Recorder; Samuel Hassell, Edward Shippen, Benj'n Shoemaker, Joseph Turner, Robert Strettal, Esquires, Aldermen. Septimus Robeson, John Stamper, Thos. Hopkinson, Tench Francis, Samuel Rhoads, Wm. Coleman, John Mifflin, Benjamin Franklin, Phineas Bond, Thos. Lawrence, Junr., George Mifflin, Common Council Men.

The Recorder acquainted the Board that there is a Design on Foot for the Erecting a Publick Academy and Charity School in this City, for instructing Youth in the several Branches of useful Learning, and that divers of the Inhabitants have subscribed liberally towards it; But as this Undertaking is attended with a great Expence in the Beginning, some further Assistance is necessary to carry it into Execution in the best Manner. And as this Corporation have a considerable Sum of Money in the Hands of their Treasurer, and have likewise an Income of about Three Hundred pounds p. annum, besides Fines and Forfeitures, the Recorder proposed that it might be considered, whether this Design for the Advancement of Learning be not worthy of some Encouragement from this Board, as their Circumstances may very well afford it. The Board having taken this Affair into Consideration, and it appearing to be a Matter of Consequence, and but a small Number of the Members now present, it was thought proper to referr the further Consideration thereof to the next Common Council: It is therefore Ordered, that the Members of this Board have notice to meet Tomorrow at four a Clock in the Afternoon, to consider of a Proposal of contributing a Sum of Money for the Encouragement of the Academy & Charity School now erecting in this City.

At a Common Council held at Philadelphia the 31st day of July, 1750. Present [in addition to those on the preceding day] Anthony Morris, William Plumsted, Esquires, Aldermen, Samuel McCall, junr., John Inglis, William Shippen, Thomas Bond, Nathl. Allen, Joseph Sims, John Wilcocks, Common Council Men.

The Board resumed the Consideration of the Proposal made at the last Common Council, of contributing a Sum of Money for the Encouragement of the Academy & Charity School now erecting in this city, and a Paper containing an Account of what is already done by the Trustees of the Academy, and what Advantages are expected from that Undertaking being laid before the Board, was read, and follows in these Words:

The Trustees of the Academy have already laid out near £800, in the Purchase of the Building, and will probably expend nearly as much more in fitting up Rooms for the Schools, & furnishing them with proper Books & Instruments for the Instruction of Youth. The greatest part of the Money paid & to be paid is subscribed by the Trustees themselves, and advanced by them; Many of whom have no children of their own to educate, but act from a View to the Publick Good, without Regard to sect or party. And they have engaged to open a Charity School within Two Years for the Instruction of Poor Children gratis, in Reading, writing and arithmetick, and the first Principles of Virtue and Piety. The Benefits expected from this Institution are:

1. That the Youth of Pensilvania may have an opportunity of receiving a good Education at home, and be under no necessity of going abroad for it; Whereby not only considerable Expense may be saved to the Country, but a stricter Eye may be had over their morals by their Friends and Relations.

2. That a number of our Natives will be hereby qualified to bear Magistracies, and execute other public offices of Trust, with Reputation to themselves & Country; There being at present great Want of Persons so qualified in the several Counties of this Province. And this is the more necessary now to be provided for by the English here, as vast Numbers of Foreigners are yearly imported among us, totally ignorant of our Laws, Customs and Language.

3. That a number of the poorer Sort will be hereby qualified to act as Schoolmasters in the Country, to teach Children Reading, Writing, Arithmetic, and the Gram-

mar of their Mother Tongue, and being of good morals and known character, may be recommended from the Academy to Country Schools for that purpose; The Country suffering at present very much for want of good Schoolmasters, and obliged frequently to employ in their Schools, vicious imported Servants, or concealed Papists, who by their bad Examples and Instructions often deprave the Morals or corrupt the Principles of the Children under their Care.

4. It is thought that a good Academy erected in Philadelphia, a healthy place where Provisions are plenty, situated in the Center of the Colonies, may draw a number of Students from the neighboring Provinces, who must spend Considerable Sums yearly among us, in Payment for their Lodging, Diet, Apparel, &c., which will be an Advantage to our Traders, Artisans, and Owners of Houses and Lands. This Advantage is so considerable, that it has been frequently-observed in Europe, that the fixing a good School or College in a little inland Village, has been the means of making it a great Town in a few Years; and therefore the Magistrates of many Places have offer'd and given great yearly salaries to draw learned Instructors from other Countries to their respective Towns, meerly with a View to the Interests of the Inhabitants. Numbers of people have already generously contributed sums to carry on this Undertaking; but others, well disposed are somewhat discouraged from contributing, by an Apprehension, lest when the first Subscriptions are expended, the Design should drop. The great Expence of such a Work is in the Beginning. If the Academy be once well-open'd, good Masters provided, and good orders established, there is Reason to believe (from many former Examples in other Countries) that it will be able after a few years to support itself.

Some Assistance from the Corporation is immediately wanted and hoped for; and it is thought that if this Board, which is a perpetual Body, take the Academy under their Patronage, and afford it some Encouragement, it will greatly strengthen the hands of all concerned, and be a means of Establishing this good Work & continuing the good Effects of it down to our late Posterity. The Board having weigh'd the great Usefulness of this Design, after several Propositions heard & debated, agreed that a Sum of Money be given by this Board & paid down, towards compleating the Building which the Trustees have purchased, and are now fitting up for the Purpose, and likewise that a Sum or Sums be given yearly by this Board, for five years to come, towards the support & Maintenance of the Schools under the Direction of the said Trustees. Whereupon the following Questions were put and carried in the Affirmative.

1. Whether this Board will give the Sum of Two Hundred Pounds, to be paid immediately to the Trustees of the Academy, towards compleating the Building purchased by the said Trustees for an Academy & Charity School in this City? Which was carried in the Affirmative by a great Majority.

2. Whether this Board will give Fifty pounds p. annum for five years next ensuing, to The Trustees of the Academy, towards supporting a Charity School for the Teaching of poor Children Reading, Writing and Arithmetic? Which was unanimously agreed to.

3. Whether this Board will give Fifty Pounds p. annum for the five years next ensuing, to the Trustees of the Academy, for the Benefit thereof, with Condition that this Board shall have a Right of nominating and sending one Scholar Yearly from the Charity School, to be instructed gratis in the Academy, in any or all of the Branches of Learning there taught? Which was carried in the Affirmative by a great Majority.

Thus deliberately the city of Philadelphia set its seal of commendation on the work of the Academy. Long years elapsed before the University again applied to the city for a further grant, and it is gratifying to find that that appeal also was answered in a way that has enabled the University to take a fresh lease of life, while it has secured to the city a noble group of buildings where higher education is pursued for the

students of all arts. Among the Penn Papers at the Historical Society are preserved the essay by Francis Hopkinson written for the exercises at the Academy in 1753, and the verses written by Jacob Duché and recited by him before the lieutenant-governor, the governor, and the late governor, and sent to Thomas Penn as a proof of the progress of the Academy. As the Penns gave nearly £3,000 to it and to the College, they were naturally interested in its growth. In its Board were the governor, the chief justice, members of the council, the attorney-general, judges of the supreme court and of the common pleas and the admiralty, members of the assembly, the mayor and several aldermen of the city, and representative clergymen, physicians, and merchants, thus showing that every local interest was concerned in the development of the College.

In May, 1756, Dr. Smith prepared a plan of education which included, in Latin, Juvenal, Livy, Cicero, Horace, and in Greek, the Iliad, Pindar, Thucydides, Epictetus, and Plato, while mathematics, natural philosophy, chemistry, hydrostatics, pneumatics, optics, and astronomy, ethics, and natural and civil law and history were made part of the course. Within two years the college had 300 pupils, drawn from Maryland, Virginia, the Carolinas, and the West Indies, as well as from the city and the neighborhood. Its commencements and other public exercises were events of local and general importance and were attended by officials of city and province. To eke out its uncertain income recourse was had, in the fashion of the day, to lotteries, which were set on foot for the benefit of the College, but in November, 1761, the trustees reported that for several years it had cost about £700 above its income. Finally Dr. Smith was sent abroad to solicit help, and with the powerful support of the Penns, among the largest contributors, he secured over £6,000 from a long and varied list, including the king and other members of the royal family, the archbishops and bishops, many of the clergy, a long array of noblemen and statesmen (among them Pitt himself), Oxford and Cambridge, and the leading towns. A subsequent visit to Charleston produced nearly a thousand guineas, and a subscription in Philadelphia produced £1,200 and a much larger amount payable at a future time. Jamaica gave about £3,000 in answer to an appeal from Dr. Morgan of the medical faculty. In 1774 the College was very successfully at work, and the commencement in May, 1775, was attended by the Continental Congress in a body and by Washington, who had just been appointed Commander-in-Chief. The printed proceedings show that professors and students were in full sympathy with the American cause and Congress.

In June, 1777, the College was closed, and so remained until September, 1778. In the beginning of 1779 it reopened with more than 200 pupils, but on February 23 the assembly appointed a committee to investigate the present state of the College and Academy of Philadelphia. No report was made, although Provost Smith on March 16 made

a full and elaborate statement and vindication. Owing to an intimation from the President of the State no commencement was held in 1779, and in July, at his request, another committee was appointed.

In September, however, President Reed called attention of the new assembly to the manifest attachment to the British Government of the officers of the College. A committee again took the matter in hand and before the month was out reported that a bill should be brought in to provide funds for the College and to remodel it. Such a bill was passed November 27, 1779, declaring the charter of 1755 void, dissolving the trustees and faculty, and vesting the College estates in a new board, and reserving £1,500 a year from the proceeds of the confiscated estates for the use of the University of the State of Pennsylvania, as the new institution was called.

The act of 1785 is a curious relic of the old method of dealing in land a hundred years ago. It gave the University, "to effectuate the pious and praiseworthy designs of the founders, benefactors, and contributors," and to "create a certain fund for the maintenance of the provost, vice-provost, masters, and assistants of the University, and to uphold and preserve the charitable school thereof," so many of the confiscated estates then unsold and unappropriated as would provide an income not to exceed £1,500, computing wheat at the rate of 10 shillings per bushel. The long list includes a rent charge of 30 bushels of wheat out of a tract of 58 acres on Germantown road and Turner's lane in the Northern Liberties; a rent charge of $12\frac{11}{20}$ bushels (the same to be divided into twenty parts) out of a tract of land in the manor of Moreland, in the county of Philadelphia; a rent charge of 20 bushels of wheat to be paid annually out of a lot of ground on the northeast corner of Second street and Sassafras street; a rent charge of 22 bushels of wheat, payable out of a lot on Front street, between Sassafras and Mulberry streets; a rent charge of $135\frac{1}{2}$ bushels (the same to be divided into five parts) out of two tracts, one of 300 acres, the other of 78 acres, in Lower Merion township; a rent charge of $2\frac{9}{20}$ bushels out of a lot of 4 acres at Poplar lane and Third street in the Northern Liberties; and a rent charge of $7\frac{1}{2}$ bushels of wheat out of a lot in Blockley township; a rent charge of $24\frac{1}{2}$ bushels of wheat out of a house and lot on Second street, between Walnut and Spruce; in all, over sixty such ground rents were given, covering lands in Philadelphia, and among the former owners were the familiar names of Christopher Sower, whose ground rent in Roxborough thus came to the University, and Andrew Allen, and Joseph Galloway, and Jacob Duché, the younger, who were pupils and graduates and trustees, and in other ways connected with the old College, the predecessor of the University. Besides these ground rents, the State gave the University a lot of ground and ferry wharf at the east end of Mulberry street; a lot and house on Sassafras street, between Third and Fourth; and a lot and wharf on the east side of Water street, between High street and Mulberry street, late the estate of Matthias Aspden,

whose estate was a fruitful source of litigation later on in the nineteenth century. The act also recites that the trustees at the sales of confiscated estates had bought fifteen houses or lots of land, and a number of rent charges on land in Philadelphia city or county, then further states that all this formidable list, at the prices at which they were severally sold, do not, when considered and taken together, amount to more than the yearly value of £1,381 5s. 7½d., computing wheat at the rate of 10s. per bushel; and then goes on to confirm these properties to the University and to make other provisions for its government.

A footnote to the law itself records that the Supreme Court in 1795 held that the trustees of the University were entitled to compensation for lands and ground rents reserved to them or bought by their agents, in case of eviction under the act of 29th of March, 1779.

It is a matter of local history that during the period of the worst depression of the currency many of the debtors of the University paid their importunate creditors in paper, so that the worthless notes had to be taken as legal tenders, and thus the provision intended for the University at the expense of the unfortunate loyalists, whose confiscated lands were to endow it, amounted to little or nothing, and for long years the University had almost no income with which to carry on its work of education.

In March, 1789, the assembly repealed the act of 1779, which had taken away the charter of the college, thus restoring it once more, but in 1791 the college and the University were by law consolidated and created the University of Pennsylvania. Although the union was the work of the State, with which the city, of course, had nothing to do officially, yet in the first board of trustees elected by the two institutions, then united, were represented the names familiar and prominent in the history of Philadelphia—Mifflin, McKean, Sergeant, Carson, Rittenhouse, Jackson, Ingersoll, White, Shippen, Lewis, Hare, Powel, Conyngham, Bingham, Clymer, Bard, and they and their associates and their successors from that day to this have continued to be men honored in every profession and finding time from other and engrossing duties to serve the University and forward its work. Philadelphia has, indeed, reason to be grateful to those who have enabled the University to celebrate the centennial of its life of usefulness with due pride.

Under the act uniting the college and the University one division of the trustees was composed of the senior ministers of the six Christian denominations, Episcopal, Presbyterian, Lutheran, German Reformed, Roman Catholic, and Baptist, thus enlisting the interest of their congregations. From 1791 until 1800 the University remained at the college buildings on Fourth street below Arch, when the University bought for \$41,650 the lot of ground on Ninth street between Market and Chestnut streets, and the building erected on it by the State at a cost of \$100,000, as a residence for the President of the United States.

Thus that site marked the local respect for that great office borne by Washington and Adams. Now, in our day, the Federal Government has made it the site for the great building in which much of its business in and for the city of Philadelphia is fitly housed.

In 1816 the trustees of the University sent to the Penns a resolution under seal pledging the University at all times to receive two persons, of the nomination and appointment of the heirs and assigns of the Honorable Thomas Penn, deceased, late one of the proprietors of the Province of Pennsylvania, to be educated free of all costs or payments whatever, to be clothed and maintained at the expense of the University, and creating a Penn foundation for the purpose. This was the final conclusion of a long discussion over the Perkasié lands, of which the Penns in 1759 had made a grant, and with it was connected later on a transfer to the governor of the commonwealth of the power of nomination to these scholarships. It was one of the last evidences of the interest of the Penns in the University to which they had been so liberal. For a long period the University received little aid either from the city or citizens. A legacy of \$5,000 from Mr. Elliott Cresson in 1855 was for eighty years the only contribution of the kind, and the income of that sum was to be devoted to aid in the instruction of drawing, not then taught in the University. The first sign of a revived public interest in its work was shown in the spring of 1868, when Mr. N. B. Browne, one of the trustees, suggested that the city should be asked to give to the University 25 or 30 acres of the almshouse farm in West Philadelphia, a portion of which might be used as a site for the erection of buildings suitable for a proposed enlarged system of instruction, including a scientific school, and that the rest might be sold, as occasion should present, at the value increased by the erection of handsome college buildings in the neighborhood, the proceeds of the sale to be paid into the endowment fund. At a meeting of the Board of Trustees held in June, 1868, it was resolved to appoint a committee to inquire into the expediency of procuring a new site for the University. In July, 1868, Charles J. Stillé, LL. D., was elected provost, and his election was a pledge that the movement thus inaugurated would be carried forward vigorously. At his inauguration as provost in September, his address was an earnest plea for a scientific school with a liberal endowment. In October the committee on a new site reported in favor of applying to the city for the purchase at a nominal rate of a portion of the almshouse farm from 20 to 25 acres in extent. The board adopted the conclusions of the committee, and a petition was accordingly presented in Select Council in December, 1868, and by that body referred to the joint committee of city councils on finance. The provost and some of the trustees advocated it, and, after many months' delay, the committee agreed to report an ordinance agreeing to sell to the University a tract of land, portion of the almshouse farm, containing rather more than 19 acres, for \$8,000 per acre, and the ordinance was reported to the Common Council on

May 13, 1869, and passed. In Select Council it was passed finally only on November 25, 1869, with an amendment that the price should be \$15,000 instead of \$8,000 per acre and that the area should be 10 acres instead of 19. Common Council amended in turn by fixing the price at \$8,000, and in this shape it finally passed councils on December 9, and was signed a few days after by the mayor. In May, 1870, the deed was finally executed, and in June, 1871, the corner-stone of the new building was laid. In July, 1872, the property at Ninth and Chestnut streets, occupied by the University since 1800, was sold to the United States and the money was used to pay for the new building. In September, 1872, work was begun there. The number of students in the Undergraduate Department was nearly doubled, and money gifts amounting to \$580,500 made to the Collegiate Department between 1868 and 1880 have shown the new spirit with which the city and the citizens of Philadelphia were helping to strengthen the University.

More than fifty years ago, and before the establishment of the Philadelphia High School, it had been proposed to establish a large number of scholarships in the Collegiate Department of the University for boys of the grammar schools, and negotiations were carried on between the Board of Education and the Trustees of the University, but nothing came of the proposal at that time. In 1874 forty free scholarships were by resolution of the trustees established in the Towne Scientific School, of which ten should be filled each year by pupils from the public schools, who should be able to pass a satisfactory examination. This action was subject to revocation, and was not based upon any consideration given to the University by the city in return. In June, 1877, the Charity Schools, dating from 1749, were abolished, and the income of the fund hitherto devoted to their use was appropriated to provide in the Towne School instruction for children in indigent circumstances. The proposal to open the University to pupils who had been trained at the public schools, mooted long before, was thus made one of the conditions of a reunion between the city and the University, and it marks the effort of the University under the management of the late John Welsh and of Frederick Fraley and their associates in the board of trustees, and especially of the provost, Dr. William Pepper, to keep touch with the great scholastic population of the city. By ordinance of January 24, 1883, the city conveyed to the University a large additional tract of land, embracing almost 14 acres. This acquisition was effected by the strenuous efforts of Provost Pepper, who succeeded in impressing the City Council so deeply with the necessity of ample space for the development of a great University and with the importance of the University to the city that not a single vote was cast in either branch against the ordinance which conveyed the fine territory for the valuable consideration of \$10,000 and the establishment in perpetuity of fifty prize scholarships, in lieu of the forty free scholarships which had previously existed solely by resolution of the Board of Trustees. The

organic connection thus created between the University and the public school system of the city, realizes the ideal so long cherished of having a continuous course of education open freely to ambitious students from the lowest class in the grammar school through the high school and the manual training school, to the highest honors of the University. These city prize scholarships are regarded as great rewards for years of faithful effort, and the establishment has served as a powerful incentive to the entire public school system of Philadelphia.

Penns' original Frame of Government promised public schools, and as early as 1683 a school was planned, and in 1689 the William Penn Charter School was organized. It is in active and successful operation to-day, and is one of the preparatory schools for the University. The proposal made in 1740 to establish a charity school was realized in 1749. The city, by its grant in 1750, gave its first official recognition of the University, and, after a long lapse of years, the city and the University have finally been brought into close and indissoluble relations.

In 1888 the city made a further conveyance of more land to the University, on the condition that a free public library should be erected and maintained by the University as a free library of reference, open to the entire community. The formal opening of the splendid Library Building on February 7, 1890, testifies the success with which this pledge has been kept, by the help of citizens who have contributed the sum needed to erect this magnificent addition to the University and its work. This building is considered fireproof, has a capacity for 350,000 volumes, and cost \$200,000, which was secured by subscriptions from friends of the University.

A further gift of land by the city had occurred in 1872, when city councils, chiefly through the earnest exertions of Dr. William Pepper, granted nearly 6 acres of land, contiguous to the other property of the University, upon the condition that a general hospital should be erected thereon in which 50 free beds for the poor of the city of Philadelphia should be forever maintained. Finally, in 1889, the remaining 10 acres of the Blakley property were sold by the city at public auction, and were secured by the University for the sum of \$150,000. By these successive steps the property of the University has been increased to 40 acres in an unbroken stretch. The situation is one of admirable vantage. It requires but a glance at the numerous stately buildings already erected to carry conviction of the wisdom of the city's policy in aiding the University in her determination to secure ample territory for the largest expansion of her educational facilities and for the accommodation of the swelling thousands of her students.

It is confidently hoped that the cordial relations between the city and the University, thus reestablished after an interval of one hundred and thirty years, indicate that in all future time the city will be ready to respond to any proper demand from the University.

Under the inspiration given by Provost Stillé and by Provost Pepper, and by the trustees, the list of individual benefactions to the Uni-

versity has been a rapidly growing one, and the citizens of Philadelphia have kept far ahead of the city in the splendor of their gifts.

As the result of the efforts of the alumni of the medical department of the University, culminating in 1871 in a formal appeal on behalf of its society to the trustees, not only were the funds secured from the legislature to build the hospital in compliance with the pledge given to the city, but an endowment fund which now amounts to over \$600,000 has been obtained.

Individual benefactions have also supplied the Gibson Ward, the Home for Nurses, the Mortuary Building, and various specific funds for the noble work so well carried on by the hospital staff. The Towne Scientific School, the Wharton School, the Veterinary Department, the Biological Department, the Library, the Department of Hygiene, the Archæological Museum, the Sommerville Collection of Glyptic Art all show the generous interest manifested by citizens of Philadelphia in the work of the University. Each of these departments is described in detail in this volume, but in speaking of the relations of the city and the University it is only right that reference should be made to the support given by individual citizens to the University. Not only was a largesum of money subscribed for the Library Building, but a number of smaller subscriptions have supplied some of the special collections now housed within its spacious quarters; noteworthy among these are the Allen, Library, the memorial of Prof. George Allen, one of the best scholars and teachers in the long roll of the University; the Pott Classical Library bought at the suggestion of Prof. John G. R. McElroy (what better monument could there be to that able and energetic student, graduate, and teacher, whose whole adult life was spent in and for the University); the Leutsch Classical Library, secured by the exertions of Prof. F. A. Jackson and serving to fittingly commemorate his long service in the chair of Latin; the Library of Semitic Languages, procured mainly through Prof. Jastrow; the Library of German literature, due to the efforts of Prof. Seidensticker, who felt the need of such a collection to supplement the work of his chair of German; the Biddle Law Library, the gift of the family of the late George Biddle, esq., one of the brilliant juniors of the profession, cut off in his early prime, just as he was winning those honors which his great abilities and noble ambition promised him; the Evans Rogers Library of Mechanics; the Stephen Colwell Economical Library, and the special collections bearing the names of Seybert, McCartee, Krauth, Crawford, Hayden, Alfred Stillé, William Pepper, Wetherill, Henry C. Carey, Pemberton Morris. All of these are but part of the many gifts that show what the citizens of Philadelphia have done and are doing for the University, atoning thus for the neglect of the city during many years. The chairs endowed as memorials of individual citizens are significant, too, of this revived interest in the work of the University. These are the John Welsh Centennial Chair of History and English Literature; the Whitney Chair of Dynamical Engineering; the Adam Seybert Chair of Intellectual and Moral Philosophy; the

Pepper Chair of Hygiene; the Thomas A. Scott Chair of Mathematics; the John Rhea Barton Professorship of Surgery; then there are the John F. Frazer Memorial; the Hector Tyndale Fellowship, the gift of the great English physicist; the Thomas A. Scott Fellowship in Physics; the Francis Sergeant Pepper Fellowship in the Graduate Department for Women; and a long and lengthening list of prizes; the Henry Reed, the Charles P. Krauth, the Sharswood, Meredith, and Pemberton Morris prizes in the Law School; the Henry La Barre Jayne prize; the George W. Childs and Anthony J. Drexel prizes; the Yardley prize; the Van Nostrand prize; the Society of the Alumni prizes; the Phi Kappa Sigma prizes; the prizes given and awarded by the Faculties of the Medical School, the Law School, and the College Department. All of these emphasize the names of those whose work in and for the University is gratefully remembered. Special mention must be made of the pioneer gift in behalf of the higher education of women made by Mrs. Bloomfield Moore; and of the liberal benefactions, both in money and buildings, made by Joseph M. Bennett, esq., to the graduate department for women. Students, instructors, professors, trustees, and others whose interest and substantial sympathy in the work of the University, are thus borne on the honor roll of the University, and it serves alike to attest what it has done in the past, and what it needs to carry on its work to-day, and what are its possibilities of growth in the future, if only it is supplied liberally with the means of advancing its teaching in all directions. Each new branch of its work is supported by contributions from citizens. The dynamical laboratory owes its existence to the gifts of those whose names represent the great industrial establishments of Philadelphia, thus attesting their interest in the higher education which the University now offers to the students of mechanical and industrial arts. The contributors to the laboratory of experimental psychology show by their gifts that the work of the University is thus by public support of individual citizens enabled to keep touch with the latest developments of purely scientific inquiry. The maternity hospital fund, the contributions to the hospital, to the Dr. William Pepper Medical Library, for the physiological laboratory for plants, and for a chair of Christian ethics, all go to show that while the needs of the University are growing, so, too, is the recognition of its claims alike upon the city and its citizens. To them it must look for that impulse which alone can keep it supplied with the means of carrying on its work. The latest plan calls for a liberal endowment of a school and library of American history, and the very fact that the teachers of that important subject are the authors of this appeal, gives it a strong foundation, for who better than they can know the needs of their own students and of the public for the means and opportunities of instruction on a subject of such vital importance? A successful answer will be the best test of the establishment of the right relation of the University and the city and citizens of Philadelphia.

CHAPTER VII.

THE DEPARTMENT OF ARTS.

As the history of the University is the subject of a distinct paper in this volume, in which are rehearsed in proper detail all matters of fact and date, I do not propose here to set them forth again, but rather to determine, if possible, the purpose with which the foundation of this department of the University system was undertaken, the principles that guided its founders and first administrators in arranging and adjusting its educational machinery, the influence of these principles in shaping the after course of the institution, and the new developments and wider scope given them in these later years. Naturally our chief interest fixes itself upon the opening and closing periods of the University's history, because in the first of these there is the spectacle of a great and inevitable need making itself felt and calling forth the best efforts of earnest, thoughtful men to supply it; and of such men with only the traditions of the Old World to guide them, grappling with this problem, and endeavoring to work out a solution of it that should take into account the new conditions and altered circumstances of the young and growing colony (and it seems hardly necessary to say that these new conditions and altered circumstances presented a more serious difficulty in matters educational than in things material or economic), and because in the latter of these periods we have to trace the introduction of new processes incident partly upon the large and sudden development of physical science, and partly upon the closer study of proper educational methods. This latter I have called the closing period. It is so, of course, only in a chronological sense, because it has extended up to the moment of this writing. Strictly and historically it is only a beginning, the beginning of a new period in the course of the University not to be defined by the present moment, but to extend beyond it until some new development gives us a new date. Nor must it be supposed that such division into periods marks any real break in the continuity of history. We shall find, I think, that every genuine educational theory and the practice of it bears within it two elements—a permanent, based upon the unchanging facts of human nature, and a variable, the outcome of the circumstances of a particular period. Of these the permanent persists and forms the cord that binds the total history into a unity, but the variable with its changes marks off the dates by which we reckon. It is only when this variable element has outlived the

days of its usefulness, has fallen from the level of a rational system to that of a mechanical routine, and has thus, from lack of thought, come to be confounded with the essential and permanent, that any change, however accordant with previous history, seems to partake of the nature of a revolution, and to betoken a complete severance of historic sequence. It may be that the innovators have a like inadequate notion of their own work; that they, too, mistake for permanent in their own scheme what is but temporary, and rate for temporary in the scheme what would reform something that is permanent, but time will take charge of this, and will surely rectify their mistakes. An educational institution is not a fabric to be taken up or pulled down or rebuilt, or fundamentally remodeled. It is a growth with its roots in the past, and the only way to break with that past is to kill the institution itself, and with it probably the innovations proposed.

A feeling that the time had come in the growth of the colony when a determined effort was to be made to provide its citizens with the means of education at home, in order that a sufficient number of properly trained men might be at hand to supply the increasing need of intelligent magistrates, merchants, teachers, and citizens, and a sense that just then, and perhaps for some time to come, public provision was not likely to be made to meet this want, led a number of the public spirited citizens of Philadelphia, with Franklin among them, to lay their hands to the work of establishing an Academy. Having themselves liberally subscribed to the necessary funds and secured other private subscriptions, besides a sum of £200 and an annual contribution of £50 from the council of Philadelphia, and £100 more from merchants in London, the trustees felt able to announce for January, 1750, the opening of an academy, "Wherein youth will be taught Latin, Greek, English, French, and German languages, logic and rhetoric, also writing, arithmetic, merchants' accounts, geometry, algebra, surveying, gauging, astronomy, drawing in perspective, and other mathematical sciences, with natural and mechanic philosophy, etc., agreeable to the constitution heretofore published, at the rate of £4 per annum and 20 shillings entrance." As the paper the trustees addressed to the common council of Philadelphia shows, and as Dr. Smith, the first provost, expressly testifies in his historic account of the foundation, an element of danger was felt at this time to be present in the rapid influx of non-English colonists, the Germans, who have left so deep a mark upon the State of Pennsylvania. It was not only necessary to provide educated men for magistrates, etc., but it was imperative early to set in operation some influence that should bring the colonists into unity and harmony; the Germans must be Anglicized, at least so far as to lead them to comprehend the institutions and traditions of the people amongst whom they had come to live, and to habituate them to the thought that they and the English around them were to form one people in mind and heart as well as in habitation, and no means, it was seen, could be so effectual to this end



THE COLLEGE CHAPEL.

as the institution of such an academy whence a supply of properly-trained teachers, and it might be preachers as well, could be put forth among these dangerous, because foreign, elements. It is not a matter for surprise, therefore, to find both Franklin and Dr. Smith actively interested a little later in the work of the society for educating the Germans in Pennsylvania. The work of this society was distinct from that of the College, but the relation of the College to it was, and was intended to be, more intimate than a merely personal one through its provost and most eminent trustee. The society was needed to meet the exigencies of the moment, but there can be but little doubt that both Franklin and Dr. Smith hoped and expected that the growth of the College would render the existence of a separate society unnecessary, or at any rate would furnish them with the teachers that just then they were compelled to take where they could find them. The University of Pennsylvania, it may be fairly said, had its birth in a scheme for what we have lately learned to call "university extension." This probably accounts for the instruction in the German language that was offered in the prospectus of the new Academy. It will account also for some other peculiar facts to be related farther on.

I have anticipated chronological order in using the term "College;" but according to Dr. Smith's explicit statement, the views of the trustees did not stop with the establishment of an Academy; it was their idea to establish this at least, and then to feel their way towards something higher; a College it was hoped, might be reared on the basis of the Academy, if it should succeed in demonstrating its usefulness and so win its way to favor and patronage. Three years after the opening of the academy, a pamphlet entitled "A General Idea of the College of Mirania," written by the Rev. William Smith and intended as a "sketch for a proposed college in New York," was sent by its author to Franklin, then President of the Board of Trustees of the newly founded Academy. This pamphlet produced a marked effect on Franklin, and led to a correspondence between him and Mr. Smith, which culminated in the appointment of the latter as provost of the College. The Academy had prospered as well as its most sanguine friends could desire, and in July, 1753, had obtained from the proprietors of the colony a charter of incorporation together with a gift in lands and money amounting to £3,000. It is quite clear that the trustees were already bent on realizing at an early moment the further development of the project they had undertaken. Evidently, too, they felt as wise men would, that the proper head for the College must be found before they took steps to give their Academy the more ambitious name. Their action in this matter might well be a lesson to us of the present day and to all generations to come. The College or University idea must first be secured in the mind of a competent administrator before the venture is made of issuing any promissory note to the public; otherwise, when the public demands, as it is entitled to do, fulfillment of the promise given, the means may

not be at hand for paying the debt. Unfortunately this lesson of their example was but too soon to be forgotten by their own successors.

On May 24, 1754, the Rev. William Smith (afterwards Dr. Smith) was "inducted provost of the College and Academy of Philadelphia, and Professor of Natural Philosophy," and the very next day he "commenced teaching in the philosophy class, also ethics and rhetoric to the advanced pupils." The use by Dr. Smith in his diary of the word "college," in the title of the institution, shows what he was expected to do; for the addition of this word to the corporate title was not authorized by charter until May 14, 1755, when authority to confer degrees was also granted.

In an elaborate paper, Dr. Smith has himself set forth the history of the Academy up to the time when he took charge of it, the scheme of instruction which he had made out for the Academy and the College that was to stand upon it, and, more precious and interesting than these, valuable as they are, the principles that guided and determined his action in framing his system. As might be expected—as, indeed, must always be the case in any wise scheme—the principles are broader than their embodiment in the curriculum. There is much in the curriculum that to-day would be changed, owing to altered circumstances, further development of special branches, a clearer insight into the nature of some; but the principles stand firm as ever, and, indeed, defy attack.

It is hoped [he says] that the student may be led through a scale of very easy ascent, till finally rendered capable of thinking, writing, and acting well, which are the grand objects of a liberal education.

Nothing can be proposed by any scheme of collegiate education but to lay such a general foundation in all branches of literature as may enable the youth to perfect themselves in those particular parts to which their business or genius may afterwards lead them; and scarce anything has more obstructed the advancement of sound learning than a vain imagination that a few years spent at college can render youth such absolute masters of science as to absolve them from all further study.

And though we flatter ourselves we shall enrich our country with many minds that are liberally accomplished, and send out none that may justly be termed barren or unimproved, yet we hope that the youth committed to our care will, neither at college nor afterwards, rest satisfied with such a general knowledge as is to be acquired from the public lectures and exercises. We rather trust that those whose taste is once formed for the acquisition of solid wisdom will think it their duty and most rational satisfaction to accomplish themselves still further by manly perseverance in private study and meditation.

The hope here expressed, the value of which as an aim constantly present to the mind of the teacher can not be overestimated, was not allowed to remain a hope, or even left to the chances of individual effort on the part of the professors. Distinct provision was made for its realization by supplementing the curriculum with a copious list "of choice, approved writers in the various branches of literature, which will be easily understood when once a foundation is laid in the books to be used as classics under the several lectures. This list is only



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meant as a private library, to be consulted occasionally in the lectures for the illustration of any particular part, and to be read afterwards for completing the whole." This, in its way, embodies the idea, and was at that time doubtless the only feasible substitute for post-graduate courses of study; and I can not refrain from saying here that many a student in later days would have been thankful for such an official list, or, in default of that, for some clear indication that such a list could easily be furnished if desired. More questionable is this:

They (the trustees) were very sensible that the knowledge of words, without making them subservient to the knowledge of things, could never be considered as the basis of education. To lay a foundation in the languages was very necessary as a first step, but without the superstructure of the sciences would be but of little use for the conduct of life.

The idea that language is crystallized thought in words and word-forms, as well as in the concatenations of words we call sentences; that literature is the expression of thought, meditation, and aspiration by means of this thought material, and that, as thought is of the innermost essence of humanity, these, its outward sensible manifestations, must be the most powerful instruments of human education, was perhaps hardly to be looked for in Dr. Smith's day; it may indeed be said that to the loud claim made in the name of physical science that in it is to be found the be-all and end-all of human education, has been in these latter days due the clearer perception of the true foundation of literature and language in a human scheme for human education. And it is curious to note that the first serious departure from Dr. Smith's scheme, and the first nearer approach to the present system lay just in the more independent position that was given to the study of languages. A fact that strikes one as curious and interesting in view of recent discussions is that the College course as he laid it down embraces only a period of three years; with reference to this he says: "No doubt the term of three years" will appear "too scanty a period for the execution of everything here proposed, and it must be acknowledged that a longer period would be necessary. But circumstances must always be regarded in the execution of every plan." This same question of three versus four years in the arrangement of College work we shall find coming up again; and it is proof of the far-reaching influence of Dr. Smith in determining the after course of the College that we find him cited (as an evident authority) on one side of the question in a way that shows clearly he had been appealed to by the other likewise.

An examination of the details of his curriculum is peculiarly interesting, and the more so as it evidently formed the basis of the College course down to 1828, and its influence can be distinctly felt as late as 1847. Particularly noteworthy is the fact that while several of the branches inserted by Dr. Smith disappeared in the various reorganizations of the course it was only (with one exception) to reappear later on, and to take upon themselves such enlarged and independent devel-

opment as to pass for innovations that savored no little of the revolutionary. Our colleagues of the Wharton School and of the School of Biology had a legitimate predecessor in Dr. Smith. The scheme is laid in three parallel columns, representing each one of the three daily lectures. Each one of these columns evidently embraces a distinct province in the scheme of education, though in the second year the subjects proper to the second column have perforce overflowed slightly into the first. In the first lecture, after a preliminary training in logic and metaphysics to develop his powers of thought, the student is to be brought to a knowledge and practical sense of his position as a man and a citizen; and this by a course embracing ethics, natural and civil law, an introduction to civil history, to laws and government, to trade and commerce. By the second he is led up through an extended course in mathematics (including conic sections and fluxions) to the study of external nature in the branches of mechanics, physics, astronomy, natural history of vegetables and animals, chemistry, fossils, and agriculture. While he was thus gaining the necessary elements for a proper appreciation of his condition as a member of the human race, and as the inhabitant of a world, subject to physical laws, the student in the third lecture (or period) was getting a training that should prepare him for the active exertion by tongue and pen of whatever abilities he possessed, so that the knowledge gained in the first two might be made available for the good of himself and his fellows through the skill acquired in the third. In this period was given the course in ancient languages and composition (except that Latin and English exercises occupied also the first two terms of the first period in the freshman year); the first year was devoted to reading the *Iliad*, Juvenal, Pindar, Cicero, Livy, Thucydides or Euripides, and Dionysius, with occasional declamations; the second to rhetoric and the critical reading of (pseudo) Longinus, Horace's *Ars Poetica*, Aristotle's *Poetics*, selections from Quintilian, followed by Cicero *pro Milone* and Demosthenes *de Corona*, with compositions in imitation of them; the third to moral and legal works parallel with the studies of the first period; parallel with ethics were read Epictetus, Cicero *de Officiis*, Tuscular's *Disputations*, Xenophon's *Memorabilia*; parallel with the course in laws and government, Plato *de Legibus*, Grotius *de Jure Belli et Pacis*. And after the first and third lectures had thus been brought into unison and harmony, the last term of the senior year was utilized to bring the three periods into their proper relation by compositions and declamations on subjects given in the first two according to the principles developed in the third. Even this hasty examination of the scheme makes it abundantly evident that Dr. Smith had a very distinct aim in laying it out, a point worth pausing to consider, for it would be hard to find such definition of purpose in many a college course. He would send forth young men equipped with knowledge of themselves, their fellows, and of the natural order of the world, and able to impart this knowledge to

others, both as teachers and as writers. And what is equally worthy of remark, he was not satisfied with laying down independent courses to this end; these courses must interlock and mutually support one another, and ultimately converge into one focus as it were, so as to impress upon the minds of the young in very practical fashion the essential unity of the whole, and at the same time help to give unity and singleness of purpose to any after efforts they might make, as he was anxious they should, in the direction of self-culture.

The excellent provision he made for this further prosecution of study by lists of standard works has already been adverted to. Equally remarkable is the comprehensiveness of the scheme. If we regard the University as being what the modern Greeks in their mistranslation have called it, a *πανεπιστήμιον*, we are surprised to find how completely a compartment was prepared for each of the many specialties that have since grown from the small germs that then existed. It is true we miss any distinct provision for the study of literature; but one side of this study, the rhetorical, was certainly made much of in the teaching of the ancient classics and several at least of the works recommended for private reading, the Spectator, Locke, Lord Bacon, Dryden's Essays and Prefaces, were such as could not fail to communicate more than a tinge of literary culture. So that it is not too much to say that there was a seed here from which the study of English literature might naturally grow, and that the linguistic and literary study of Latin and Greek could easily be grafted upon the rhetorical pursuit of them here arrived at. As to the English tongue indeed, Dr. Smith was so earnest in his persuasion that it was of prime importance, and that in the English universities it had been too much neglected, that we may be sure, had he lived in our day, he would have been amongst the most zealous laborers to secure it a worthy place in the college he helped to found. Language and literary form were, to his mind, mere instruments of expression, tools that one might use clumsily or skillfully, and as such only did they claim a place in a college course. He was not alone in his view in those days (there are some who hold it yet, the more's the pity) and we need not be surprised that his beliefs took evident shape in the curriculum.

Below this, but in Dr. Smith's view forming part of the College, was a Latin and Greek school in four forms or stages, in which were read Eutropius, Nepos, Metamorphoses, Virgil, Cæsar, Sallust, Horace, Terence, Livy, the Greek Testament, Lucian, and Xenophon or Homer. In the last form English writing, original (themes, letters, descriptions, and characters) and translated from Latin "with great regard to punctuation and the choice of words," received special attention; English and Latin orations "are to be delivered, with proper grace, both of elocution and of gesture;" arithmetic was begun. "Some of the youth," he says, "go through these stages in three years, but most require four and many five years, especially if they begin under 9

or 10 years of age. It may be inferred from this that the average age of students on entering the philosophy schools (we should say the course in arts) was from 13 to 14 years.

In the distribution of the work the three years of the philosophy schools (or course in arts) were assigned to the provost and vice-provost, professors of natural and moral philosophy respectively; the Latin and Greek schools to the professor of languages, with the aid of tutors. The professors of English and oratory and of mathematics taught only in the Academy.

Such was the conception of the College that Dr. Smith endeavored to realize in his administration. Fortunately, he was a man who possessed not only a head to conceive, but administrative talent to carry into effect what his head had so well planned. The plan was thoroughly carried out in its details. Of this we have not only his own explicit statement, but independent evidence in the notebooks, still preserved, of the students in the branches of natural and moral philosophy.

The prosperity promised by the excellence of the plan, and the vigor of the provost, and verified in the growing number of the students, was interrupted by the turbulent days of the Revolution, and worse yet, absolutely cut short by the unjust and injudicious action of the legislature of Pennsylvania. *C'était plus qu'un crime, c'était une faute.* On the most absurd grounds the charter of the College was taken away in 1779, the Board of Trustees and the faculty dissolved, and a new institution incorporated under the style of the "University of the State of Pennsylvania," with a new Board of Trustees and a new faculty. The difficult days of the Revolution might have been tidied over, and the setback given by the British occupation of Philadelphia retrieved by the tried vigor of the provost with the prestige already won, but it was quite another thing to win the confidence of the public for a new institution and an untried administration; and matters doubtless were not improved to people's minds when they thought over the process of the action and the causes that gave birth to the new University. In 1789 this action was reversed and the charter restored, but it was soon felt that there was not room in the small community for the restored College and the rival that had supplanted it. In 1791 a union of the two was effected under the name and title of the "University of Pennsylvania." One-half of the Board of Trustees was taken from the University of the State of Pennsylvania. A new faculty was to be chosen by the new Board of Trustees.

The course was extended to four years. Exactly how this was done is not clear, but there is evidence to show that it was partly due to the incorporation into the course in arts of the last "stage or form" in Dr. Smith's Latin and Greek schools, for in 1810, when we first come upon a statement of the requirements for admission, we find them more than fulfilled (except as to arithmetic) by the studies in the third "stage or form" of these schools. There must, however, have been a slight shifting

of position in some of the studies of the course itself. In no other way does the course appear to have been modified; the studies remained the same; the end in view was unchanged. There was, however, a redistribution of the work of teaching. The professors of natural and moral philosophy were henceforth to teach only the two upper classes; the professors of mathematics and of belles-lettres (a new title replacing that of English and oratory), the two lower classes. These four constituted the college faculty. The professor of mathematics had charge of all the pure mathematics; the professor of belles-lettres, of rhetoric and the reading of Latin and Greek authors, with a view to instruction in polite letters; the professor of natural philosophy, of the applied mathematics and the natural sciences as mapped out by Dr. Smith; the professor of moral philosophy, besides his philosophic instruction, was to read such Latin and Greek classics as bore upon his proper field. The course is nowhere laid down so far as I have been able to find; but these facts warrant the statement already made that it was essentially Dr. Smith's. The principles are evidently his, and the changes are fully accounted for by the addition of a year to the course, and of the two professors to the faculty. The professor of languages, as before, was merely the "head of a grammar school." It may be worth mentioning here as a proof that the University felt itself to have fallen heir to the works of the Society for Educating the Germans in Pennsylvania, that the new trustees established a grammar school where youth could be taught Latin and Greek through the German tongue, and chose a professor of German and Oriental languages to be the head of it. When it came to the election of professors, Dr. Smith's name was rejected by a small majority. Dr. Ewing, who had been provost of the late University, was elected provost and professor of natural philosophy in the new. There are not wanting signs to show that this was predetermined. It was stipulated (before any name had been mentioned) that the professor of moral philosophy should take charge of such branches of natural philosophy as the incumbent of that chair "might not be able to manage." This could hardly apply to Dr. Smith, as his previous record shows, but it was not long before complaints arose as to the insufficiency of Dr. Ewing's instruction, particularly as to the performance of illustrative experiments.

From whatever cause their choice proceeded, they had ample occupation in regretting its results, though it was long unfortunately before they reached a clear view of the mistake they had made. For the doubly difficult task of resuscitating a defunct college, there was more need than ever of one man of clear head and strong will, able to see the right end and the right way to it, and able as well to get both trustees and faculty to take that right way to that right end. It was of no avail to adopt a scheme, however wise, if that scheme was to be left to itself; no scheme is worth more than the mind and the will of him who is behind it; and most emphatically is this true of a scheme of education.

That the first duty of a Board of Trustees is to put such a man at the back of their plan, that he may put the life's blood of his own energy, and the rational methods of his own wisdom into it, the history of the course in arts proves. Trustees have proper functions of their own; they can not take his upon themselves with safety. Practically the course in arts was now without such a head; and the natural results soon disclosed themselves. Everything seemed to go wrong. The faculty were not at one; the students murmured, their parents murmured; the trustees, without experience in education, what could they do? One thing at least—and they did it. They appointed committees of investigation. Before the century was out, we find one of these committees helplessly wondering whether the board might not itself be responsible for the lack of success, because they had drawn up no definite scheme of instruction! What better could they have done than what they did; adopt the excellent schemes that lay before them ready made to their hands, if only they had not neglected to put at the head of the College the one man who could put meaning into every line of it. The very comparison they made with the success of the Medical Course might have taught them a lesson; that course was certainly not of their devising; and the success that attended it was due to the qualities to be found in the faculty, and to that intelligent unity of counsels and of efforts which were secured to it by the professional character of its instruction. It is curious to see how their minds kept going back to Dr. Smith's scheme; but it is ever the scheme, not the man, they think of. On March 4, 1810, they framed new and detailed rules for the guidance of the professors and thus tried to lay the ghost that haunted them. They had departed from Dr. Smith's scheme by severing the pure mathematics from the chair of Natural Philosophy, and as the professors who held these chairs had quarreled, there could be no reasonable doubt that a return to his scheme in this particular was necessary; these chairs at one, as they must now be, all would go well. But the ghost would not down; all did not go well. A still further return must be made.

It is true there is no mention of Dr. Smith, but at a later period, when this same matter came up again, his name is mentioned, and his authority appealed to. They had already done away with the professor of mathematics; but neither this nor the new rules they had framed had brought any increase of numbers or of reputation. Now they would again reduce the number of classes from four to three. There should now be three classes and three professors: a professor of natural philosophy and mathematics, a professor of moral philosophy, and a professor of languages; the duties remained as before, the professor of languages taking the place of the professor of belles-lettres. They would require for admission *Cæsar*, *Virgil*, Latin composition, the Gospels, and arithmetic. If this be compared with the forms and stages in Dr. Smith's Latin and Greek Schools it will at once be seen that, except

as to arithmetic, his third-form boys could now enter college. In so far, therefore, they had lowered the standard which he had set up and successfully maintained. The three years took their fancy, as it has taken many people's fancy since, and they saw in it a panacea for all the ills they were suffering from. This was in 1810. For a brief space they contemplated their work with satisfaction; but within fifteen years the old round began again. Success would not come at their call, and something must be done; this time as we shall see, it was to be something desperate. Committees of investigation now report their belief that the reduction of the course to three years had been a mistake. Dr. Smith (they quote him by name), it is true, had laid down a three years' course, but he had expressly stated that this was but a concession to circumstances. Five years even he would have had, could he have managed it. Four years certainly is little enough for the work to be done; other colleges have four years and succeed; so may we. It would be well, too, to restore the chair of mathematics. Nor would they stop here; there should be a new model, a new course: Greek and Latin, indispensable foundations of all education, should be the chief studies of the first two years; mathematics (though not too exclusively) of the third; mind and matter of the fourth. Let any one who will examine Dr. Smith's course, and he will see where this distribution of subjects came from. They then proceeded to fill in the details; but they never reached a vote on its adoption. For, after electing a professor of mathematics, as had been determined, they came to the conclusion that no tinkering with the course could do any possible good, unless they had first secured the right men. To this task they addressed themselves. There should be no half measure. A complete break must be made with the unfortunate traditions they had themselves been mainly responsible for creating; to this end they removed the whole faculty except the newly elected professor of mathematics and Prof. Patterson, who resigned, and to the regret of the Board declined a reëlection. Now for the first time is heard the expression of the truth that a man, whose name, reputation, experience, and ability would command public confidence, must be chosen for the position of Provost. Their choice fell upon one of their own number, the Rev. William A. De Lancey, D. D., who was elected professor of moral philosophy. But as the chair of moral philosophy involved many branches besides those which its name would now seem to imply, and as it was conceived necessary in order to clothe the office of Provost with proper dignity, that he should teach none but the senior class, an assistant professor of moral philosophy was appointed to teach the lower classes. The faculty, as now constituted, included a professor of moral philosophy, who was also Provost, a professor of mathematics, who was also vice-provost, a professor of languages, a professor of natural philosophy and chemistry (so the title was now worded), and an assistant professor of moral philosophy.

For the new faculty a new course was provided. The requirements for admission were set about to the standard Dr. Smith had prescribed, those in arithmetic being slightly raised. Mathematics and natural philosophy were differently distributed, the former being now, with mechanics, spread over the whole four years, and the latter over the last three. The department of Moral Philosophy still covered rhetoric and cognate subjects, as well as natural and political law, history and geography. But it was in the department of Languages that the most striking changes appeared. A relic of its old subservience to rhetoric appears at first in the assignment of Cicero's Orations to the assistant professor of moral philosophy in the freshman year. That this, however, was more due to a tradition that he was the proper person to help the professor of languages than from a clear sense of the meaning of his services in this line, may be inferred from the fact that to him was given up also till 1831, the subject of Roman and Grecian antiquities. From 1831 on, the latter subject goes over to the professor of languages, and the orations of Cicero disappear; written translations from ancient authors in the department of Rhetoric preserve a faint trace of the relation as late as 1847. Except in these particulars the languages have come to stand upon their own feet, as having a right in themselves to a place in the college courses, instead of being humble handmaidens to moral and natural philosophy, and means for learning the rules of rhetoric. Such works as (pseudo) Longinus, Horace's *Ars Poetica*, Cicero *de Officiis*, Epictetus, continued to be read, but at times that loosed them from all connection with other studies. Languages with rhetoric had furnished Dr. Smith with the means of gathering into one and knitting firmly together the strands of his course; with the breaking loose of languages from this close union, and their starting into an independent career in the college course, the first step was made towards a like independence of all departments, which should make each within its sphere an absolute law unto itself, instead of a unit in a general plan, to the laws of which one and all must humbly submit. The subjects of trade and commerce, of agriculture (apparently), of Government, disappeared entirely. The publication of annual catalogues appears to date from the year 1828; a promise to this effect is contained in an undated circular (which a comparison with the records of the Board of Trustees proves to have been issued in 1828), signed by the president and secretary of the board. In 1831 appears the first recognition of a department of English Literature, this being put in charge of the assistant professor of moral philosophy. Readings in prose and poetry comprised at first the whole of his activity in this direction. A steady development of this subject dates from 1835, when the style of the chair was altered to rhetoric and English literature; along with this went a large progress in the historical instruction which was confided to the same professor.

In 1841 lectures on English literature, delivered to the senior class,

have taken the place of the readings in prose and poetry with the freshmen, and by 1843 history has ceased to be a summary reading given in a single year, and we find in its place ancient history in the freshman year, modern history in the sophomore year, and Arnold's lectures on modern history in the junior year, while the senior year caps the whole with lectures on Constitutional history and laws of the United States. In 1853 the style of the chair is again changed; now it reads *Belles Lettres* and the English Language and Literature, as the title shows, and an examination of the course confirms it; the English language, no longer a grammatical study, nor even as a vehicle for expression, but as a branch of philology had at last conquered a recognition it was never to lose. The enlargement of the chair in this direction necessitated a shifting of some subjects (International Law, Constitutional Law of the United States) back to their old place under the chair of Moral Philosophy, Simultaneously Political Economy, (the modern correspondent of Dr. Smith's Trade and Commerce) made its first appearance. These are the most important signs of progress towards "the new times a coming." Little significance can be attached to the chair of geology and mineralogy that existed from 1838 to 1845, but with no perceptible effect on the course. Science and philosophy remained stationary, or nearly so, but languages had made a decided advance in that one modern language with its literature, and that the one with the best right on its side, had obtained a place in the college course. It must not be forgotten, however, that the first break in the more modern direction had been made in 1828 by the department of Ancient Languages; nor had this remained altogether stationary since then. Till 1844-45 no changes had occurred, except in minor points of detail, but in that year a second break was made in the old traditions with the advent of Prof. Allen. The last relics of the rhetorical character of the original course were swept away. Epictetus and the (pseudo) Longinus went out, and henceforth the course in Greek was confined to the great literary movement of the classical period. No change was made, because there was no similar reason for it in the accompanying Latin course, but those who can remember Prof. Allen will not need to be told that under him the linguistic and literary side (but especially the latter) of the study was more and more exclusively emphasized. Again, in 1854, by the addition of an adjunct professor of Latin and Greek (to become in 1854 professor of Latin only) the instruction in the two languages was divided, so that greater thoroughness in teaching was made possible, while the independent value of each language as a specialty was recognized. From the point of view of education there is no essential difference between the fractioning up of an old subject into several new specialties and the introduction of new subjects. Still less is there any difference between this and similar divisions in the department of Science.

During the whole history of the University there had been provision made with varying degrees of completeness for such as desired to study

French, German, Italian, or Spanish. Such study was not required for a degree; nor were the professors members of the faculty. How far the offers thus made were accepted, it would be hard to say. In 1867 the first wave of what has been called the "new education" struck the University. The changes that were made in consequence looked to most people like a removing of the old land-marks, and the setting up of new. It can hardly be maintained now that such was the case; there had been distinct, it may have been slow, progress for some time back, chiefly in the matter of language and literature. There was now to be a sudden starting forward, but after all along the same lines; languages now, as before, were to lead, though science was to make its first halting step forward. English had now its place, but demanded a larger; other modern languages were to have official reception into the course for a degree; mathematics was to enlarge its borders; and Greek and Latin were not to be forgotten. A professor of German, and an assistant professor in the English department were added to the faculty. French, Spanish, and Italian were represented, each by an instructor; an instructor in mathematics was appointed. Two of these were to assist in the departments of Latin and Greek. This addition of new subjects to the regular course in arts necessitated the introduction of the much-discussed but inevitable, elective system. It now came into full-fledged existence; but from the first moment that the compact, closely knit unit of Dr. Smith's course was broken, it had appeared, though unrecognized, in principle: for from that moment, the College course ceased to be one and resolved itself into a certain number (and what was to prevent enlarging this number) of chronologically, but only chronologically, parallel courses. From that moment, too, let us hasten to acknowledge it, the danger began to threaten that education would disappear before the training of specialists. But to enter on a road that leads to elective courses is one thing; to reach them and deal with them wisely is another. All the prominent colleges of the country have been wrestling with this problem now more than twenty years. Which will venture to say it has successfully solved it? As in most colleges in the United States, the elections here are confined to the junior and senior years. Of course, from the first Latin, Greek, and mathematics were the subjects affected by the introduction of elective courses; English (in what may be called a minor course), philosophy, and certain physics being required in those years. The election was made between definite subjects; for instance, German or Spanish might be substituted for Greek; French or Italian for Latin, etc. This system, with changes in the application of it (Spanish and Italian were dropped from these alternatives) remained in vogue until 1887, when the practice was adopted of dividing the elective studies into two groups: Group A, linguistic and literary in character; and group B, mainly scientific. From group A each student is required to choose two studies and from group B, one. There has been but little change in the details of the required subjects

either in the first two or the last two years, except that a larger development of English and English literature has thrust both French and German out of the freshman and sophomore years, where they at first figured as required studies for the space of a year each. But the number and variety of the elective subjects offered has of late years enormously increased, owing to the development of the original departments, chiefly the Scientific. By successive additions to the teaching force, the department of Mathematics has come to be represented by one professor and two assistant professors; the department of Natural Philosophy by a professor, an assistant professor, and an instructor in physics, two professors with assistants in chemistry, professors of mineralogy, of geology, of paleontology, of zoölogy, of vertebrate morphology, of biology, of embryology, and two professors of botany; the department of English by a professor of history and English literature and a professor of rhetoric and the English language with an assistant; the department of German by a professor with an instructor (who takes charge also of Italian); the department of Ancient Languages by a professor of Latin, a professor and instructor in Greek, a professor of comparative philology, and a professor of Hebrew; the department of Philosophy by a professor of intellectual and moral philosophy and by a professor of experimental psychology. A formidable list, and one that might more justly be regarded as an expansion of Dr. Smith's scheme, as originally proposed, than of the somewhat reduced form in which it appeared after the transformation of 1828; an expansion, it is true, rendered possible by the independence then first given to separate departments. The endeavor is now, as it was then, to include all true knowledge within the scope of the College course; but the notion has been abandoned of trying to cram it all into one poor student's head. It is easily seen that with the present arrangement there will be no further necessity for reformation of the whole course in order to make room for new subjects that may establish in the future a just claim to inclusion within it, or to provide for necessary extension of subjects already included, when special portions of them rise to the dignity of special departments. The system is now so elastic that such extensions will find room waiting for them without any dislocation of the existing order. The only thing that could cause serious difficulty in readjusting the course, would be a change in the point at which election is introduced.

In the course as at present constituted, the candidate for the degree of A. B. in the freshman and sophomore years gets instruction in rhetoric and declamation (theoretically and practically); in English literature through lectures and themes upon topics connected with the lectures; in Greek and Latin, sufficient to give him a good hold upon those tongues for practical purposes or further study, with work in Greek, involving outside reading of standard manuals of antiquities and of history; in universal history and the Government of the United States; in mathematics, including analytic geometry and astronomy;

in inorganic chemistry, through lectures and laboratory work; in elementary physics; in the junior and senior years in English composition; in English literature, through lectures and seminary work; in logic, ethics, history of philosophy and psychology; in political economy. In the first two years there are also lectures on hygiene by the director of physical education. Besides these in the junior and senior years there are thrown open to the students an exceedingly wide and varied range of subjects for election: Greek, Latin, Hebrew, Sanskrit, Anglo-Saxon, Gothic, German, French, Italian, English philology, linguistics, advanced English composition, readings in English literature, history (industrial, social, political, and constitutional history of the United States, modern history since 1789, philosophy of history), advanced mathematics, analytic and organic chemistry, practical and mathematical physics, experimental psychology, mineralogy, geology, and a number of courses in biology.

Nothing, perhaps, has attracted general attention in our colleges of late years in greater measure than the important place modern languages have come to occupy in their curricula. Introduced at first as something that the public at large regarded as more "practically useful" than the ancient languages, and taught mainly with a view to reading, and as far as possible speaking, they have come to be treated as languages to be investigated philologically, and as possessing literatures to be studied historically and critically. An examination of the studies of the course, as given above, will show that the University of Pennsylvania has participated in this advance. By the professor of German and the recently added professor of Romance languages both French and German philology are taught, courses in Gothic and old French being offered to such as desire them; and in both languages (as well as in Italian) the literature receives full attention. English, by the addition of courses in Anglo-Saxon and English philology, has followed in the same direction. Students may now not only obtain large practical drill in the use of their mother tongue, but may also, if they will, learn something of its origin, its history, its growth, and of the linguistic laws that govern it. The large scope that within the last few years has been given to the study of English literature, and the method followed, which necessitates large and careful reading of standard classics, insure to our mother tongue that commanding place in a scheme of education which is unquestionably her due. Sanskrit supplies the necessary stepping stone for the study of comparative philology, and the course offered in linguistics gives as complete an introduction to that interesting and growing field of study and research as is possible in an undergraduate course. Hebrew now paves the road for any who desire to enter upon the field of Semitic studies. In psychology, the latest methods, the experimental—so late that there are doubtless many cultivated men who have hardly heard of them, and would regard them as paradoxical if not self-contradictory—have

been introduced under an able investigator with a fully equipped laboratory. The mere list just given of separate titles is evidence enough of the very large development of the course in all branches of physical science. It is enough, perhaps, to add that within the last few years the latest group among the natural sciences, the biological, has been added in highly developed form. Pure mathematics, the first of the sciences to enlarge its borders, has in the last year largely increased its offers of higher work in its more special departments.

But the advance the University has made is not more marked in the wider scope of specific instruction than in the improved methods that have been introduced for the purposes of imparting that instruction. There were days when lecture and text-book instruction were thought sufficient, but the world has gone beyond that now (one is sorely tempted to believe sometimes that the pendulum has swung too far and that a moderate return to former methods may be advisable), and we have progressed with it. With the growing equipment of the University in laboratories, museums, and library, it has become possible to put this method into efficient practice. By experimentation in laboratories and independent looking up of assigned topics in libraries, the students are brought into close personal contact with the subject-matter of their studies, are habituated to the use of works of reference, are exercised in the gathering and (for them) discovering of new knowledge, while by reports to be afterward made, either in ordinary class work or more formal seminars, they are trained in the right ordering of what they have thus gathered, in the estimation of the relative value and bearing of facts and the interpretation of them, and in the careful formulation of their results for the information of others. They acquire thus a training of their powers and a preparation for after study that is entirely independent of the educational value of the studies themselves—a training in methodical systematic work. If it be our desire, as it was Dr. Smith's, that our students should persevere after graduation and find most rational satisfaction in "private study and meditation," there could be no better way than by accustoming them before graduation to work of this sort under proper guidance. The day will come when they must be guides unto themselves, and they should be prepared for it.

There is, too, this further advantage, that this will open their eyes to the fact that there are stores of wisdom and knowledge beyond what can be given by lectures and recitations, will show them some of the store-houses where that knowledge is to be found garnered, and will set them in the way, if so be that they desire it, of getting fuller information yet in this important matter. The personal contact with the subject that has already been mentioned has a force that is not half appreciated in educating the young; it is like getting one's feet upon solid ground. To have read carefully and thoughtfully a single play of Shakespeare, to have spelled out for one's self the details of plot and the development of the character, and to have cast this into definite

form for others to hear and understand, even if there be nothing else done either towards investigating the sources of the story or examining the language of the piece, is worth more as an educational discipline than a whole course of lectures on the poet, though they should be accompanied by private, but cursory reading of all his works. In the departments of physical science this is better understood; the advantage that accrues to the student from making his own experiments and gathering his own experience of the workings and relations of forces and substances hardly needs mention; but great as this is, it is small in comparison with the gain that comes from this method in the study of literature.

Such is the present equipment and such the present method in the department of arts; in both it may claim to be abreast of the times. Not that there are no problems yet to be solved—there are more, perhaps, than we are aware of, and it is well that there are, for without them there would be no progress. The most pressing at the present moment is this: How to reconcile election of knowledge with enforcement of education.



THE MEDICAL COLLEGE FROM THE WEST.

CHAPTER VIII.

THE MEDICAL DEPARTMENT.

THE PAST.

As near as can be determined from such old records as have come down to us, the first course of lectures ever given upon anatomy upon the Continent of America was delivered in 1751 by Dr. Thomas Cadwalader, in a house, Second street, which faces Dock street, in Philadelphia. Ten or eleven years elapsed before Dr. William Shippen, jr., advertised in the *Pennsylvania Gazette*, November 25, 1762, that:

Dr. Shippen's anatomical lectures will begin to-morrow evening at six o'clock, at his father's house in Fourth street. Tickets for the course to be had of the Doctor at five pistoles each, and any gentlemen who incline to see the subject prepared for the lectures, and learn the art of dissecting, injections, &c., are to pay five pistoles more.

Three years later Dr. John Morgan returned from a five years' study in Great Britain and upon the Continent of Europe, and laid before the Board of Trustees of the College of Philadelphia a plan for establishing a medical school under their auspices. The earnest appeals of Dr. Morgan, sustained as they were by the high testimonials which he had received in Europe, resulted in his election in May, 1765, to the first medical professorship in America, namely, the chair of the theory and practice of physic. The following September Dr. Shippen was elected professor of anatomy and surgery.

Lectures were given by these professors, but it was not until 1767 that a curriculum was prepared, and the "requisites for a bachelor's degree in physic," and the "qualifications for a doctor's degree in physic," to be given by the College, publicly promulgated.

The first regulations to be found in the minutes of the Board of Trustees in regard to fees is in May, 1768, when the price of tickets for the single course it was determined should not exceed "six pistoles" (\$20), in addition to which there was a matriculation fee of 20 shillings, and each student on taking the degree of bachelor of physic was required to pay a fee of not less than a guinea to each professor, and "likewise the usual fees for the seal of his diploma and for the increase of the library."

The clinical lectures at the Pennsylvania Hospital, delivered by Dr. Thomas Bond, appear to have been an integral portion of the course, although it is not known that Dr. Bond was ever formally elected pro-

fessor. In 1768 Dr. Adam Kuhn was added to the faculty as the professor of materia medica and botany. In June, 1768, at the first commencement of the College of Philadelphia the degree of bachelor of medicine was conferred upon ten candidates, the first group of the 10,753 physicians who up to 1892 have been sent into practice by the Medical Department of the University of Pennsylvania.

In 1769 the renowned Dr. Benjamin Rush became professor of chemistry, and in the season of 1769-70 the announcement of the Medical School was as follows:

Theory and practice of medicine, John Morgan, M. D.; anatomy, surgery, and midwifery, William Shippen, jr., M. D.; materia medica and botany, Adam Kuhn, M. D.; chemistry, Benjamin Rush, M. D.; clinical medicine, Thomas Bond, M. D.

Young in years was this school and young in years were the professors, save Dr. Thomas Bond, who alone was over 50. Rush was 24, Kuhn was 28, Shippen was 33, and Morgan was 34.

The medical lectures in the College of Philadelphia appear to have been steadily continued, with occasional interruptions of individual courses, caused by absence of professors, until the breaking out of the Revolution in 1776; especially the occupation of Philadelphia by the British in 1777, caused them to become very irregular. At the close of the war it was alleged that some of the members of the Board of Trustees were disaffected toward the new Government, and by an act of legislature in 1779 the charter of the College was abrogated, its officers removed, and its property transferred to a new institution chartered under the name of the University of the State of Pennsylvania. The trustees of this new institution at once attempted to organize a new Medical Department, and requested the late professors of the College of Philadelphia to take their respective chairs. Of these professors, only Dr. Shippen accepted, and so much difficulty was found in obtaining other professors that the medical instruction was exceedingly irregular and imperfect, although there was no further interruption to graduation each year.

After ten years of agitation, and by the aid of Benjamin Franklin, on March 6, 1789, the friends of the College of Philadelphia succeeded in obtaining from the legislature a repeal of the act which had deprived the institution of its charter. One week after this the trustees reinstated the medical faculty, appointing the old professors, Shippen, Kuhn, Rush, and Morgan.

There were now in Philadelphia two rival, antagonistic medical schools; the result was so unsatisfactory that, in 1791, especially through the efforts of Dr. Caspar Wistar, an amicable adjustment was brought about between the two colleges, and as the result of a petition from the two schools, the legislature passed an act consolidating the College of Philadelphia and the University of the State of Pennsylvania in one institution, to be known as the "University of Pennsylvania."

The degree of bachelor of medicine, which had been dropped by the College after its reorganization in 1789, was now abolished altogether, and ever since the University of Pennsylvania has given only one medical degree, that of Doctor of Medicine.

The first faculty of the University of Pennsylvania was formally constituted as follows, attendance upon the course of botany and natural history, however, not being necessary for graduation: Anatomy, surgery, and midwifery, William Shippen, M. D., Caspar Wistar, M. D., adjunct; theory and practice of medicine, Adam Kuhn, M. D.; institutes of medicine and clinical medicine, Benjamin Rush, M. D.; chemistry, James Hutchinson, M. D.; materia medica and pharmacy, Samuel P. Griffitts, M. D.; botany and natural history, Benj. Smith Barton, M. D.

The death of Dr. Hutchinson, in the latter part of 1793, was followed by the election of Dr. James Woodhouse, in 1795, to the chair of chemistry; and the resignation of Dr. Griffitts, in 1796, led to the election of Dr. Benj. Smith Barton to the professorship of materia medica. After the retirement of Dr. Kuhn, in 1797, Dr. Rush filled the duties of the two chairs—theory and practice of medicine, and the institutes and clinical medicine—until 1805, when the professorships were consolidated. In the same year the chair of surgery was created, and filled by the election of Dr. Physick; and in 1809 Dr. John Redman Coxe was chosen to fill the professorship of chemistry, left vacant by the death of Dr. Woodhouse.

It is worthy of note that in 1806 a petition from the medical faculty of the University was laid before the legislature requesting that a law be passed which should prevent the practice of medicine by ignorant persons who had not graduated from some university or college, a petition whose object was first advanced in the present decade by a law regulating the practice of medicine in the State of Pennsylvania.

For forty-five years after the foundation of the Medical School, the chairs of anatomy and obstetrics were united, but in 1810 obstetrics disenthralled itself from servitude, although it was distinctly stated in the resolutions of the Board of Trustees creating the professorship of midwifery that it was not necessary for students to attend the lectures of such chair in order to obtain the degree of doctor of medicine, and it was not until 1813 that the professor of midwifery was made a professor of the medical faculty and attendance upon his lectures became compulsory. The first professor of midwifery was Dr. Thomas C. James, who was elected in 1810. In 1834 he was succeeded by Dr. William P. Dewees, who in 1825 had been elected adjunct professor of obstetrics. In 1835 Dr. Hugh L. Hodge took the chair, to be followed in 1863 by Dr. R. A. F. Penrose, whose resignation, in 1888, was followed by the appointment of two assistant professors, Drs. Howard A. Kelly and Barton Cooke Hirst, of whom Dr. Kelly resigned the following year and Dr. Hirst was raised to the full professorship.

The chair of practice of medicine was filled by Dr. Barton from 1813 to 1816, when Dr. Nathaniel Chapman took the position, which he held until 1850, when Dr. George B. Wood was transferred to it, to be succeeded in 1860 by Dr. William Pepper. In 1864 Dr. Pepper was forced by ill health to retire, and Dr. Alfred Stillé was elected, to be followed in 1884 by the present incumbent, the younger Dr. William Pepper.

The chair of *materia medica* was filled from 1813 to 1816 by Dr. Nathaniel Chapman; from 1816 to 1818 by Dr. John Syng Dorsey; from July, 1818, to 1835 by Dr. Coxe; from 1835 to 1850 by Dr. George B. Wood; from 1850 to 1876 by Dr. Joseph Carson, who was followed by the present incumbent, Dr. Horatio C. Wood.

In 1818 Dr. Coxe was succeeded in the chair of chemistry by Dr. Robert Hare, whose resignation in 1847 was followed by the election of Dr. James B. Rogers. After his death, in 1852, his brother, Dr. Robert E. Rogers, was chosen. He filled the chair until 1877, in which year the present incumbent, Dr. Theodore G. Wormley, was elected.

In 1818, at the death of Dr. Wistar, the chair of anatomy was filled by the election of Dr. John Syng Dorsey, who died suddenly the same year. After performing the duties temporarily, Dr. Physick was prevailed upon to accept the professorship in 1819. In 1831 Dr. Physick resigned his active connection with the school, and the chair was conferred on Dr. William Horner, who had been adjunct professor of anatomy, and at whose death, in 1853, Dr. Joseph Leidy, was elected. Dr. Leidy died in 1891, and was succeeded by the present incumbent, Dr. George A. Piersol.

After the vacation of the chair of surgery in 1819 by Dr. Physick, it was filled by Dr. William Gibson, who was succeeded in 1855 by Dr. Henry H. Smith, after whose resignation in 1871 Dr. D. Hayes Agnew was elected, to be succeeded in 1889 by the present incumbent, Dr. John Ashhurst, Jr.

In 1835 the chair of the institutes of medicine, which in 1805 had been united with the chair of practice, both to be filled by Dr. Rush, was separated from it, and the professorship was given to Dr. Samuel Jackson, who resigned in 1863, to be succeeded by Dr. Francis Gurney Smith. After the resignation of Dr. Smith, in 1877, the chair remained vacant until 1878, when Dr. Harrison Allen was elected to it. In 1885 Prof. Allen resigned, but the present incumbent, Dr. Edward T. Reichert, was not elected until 1886. He, however, delivered the course for 1885-'86 before his election to the chair.

In 1873 the faculty of medicine was enlarged by the election of the chairs of clinical medicine, clinical surgery, gynaecology and pathology, and morbid anatomy. The chair of clinical medicine was filled until 1884 by Dr. William Pepper, and from 1884 to 1889 by Dr. William Osler, who was succeeded the same year by Dr. James Tyson. The first professor of clinical surgery was Dr. John Ashhurst, Jr., who was succeeded in 1889 by Dr. J. William White. The chair of pathology



and morbid anatomy was filled from its foundation until 1889 by Dr. James Tyson, who was succeeded the same year by Dr. John Guiteras. Dr. William Goodell, the first professor of gynæcology, is still in active service.

The first lectures of Dr. Shippen on anatomy appear to have been given in the rear of his father's residence, on Fourth street, above Market, in apartments which he had himself evidently fitted up for the purpose, whilst the other medical lectures in the College of Philadelphia were delivered in the old Academy building, on Fourth, near Arch. The first building especially arranged for the use of the medical professors of the College of Philadelphia was situated on Fifth street, below Library, and was known as the Surgeons' Hall, or as Anatomical Hall. It is probable that the University of the State of Pennsylvania occupied this hall after the first suspension of the College of Philadelphia, but at the resumption of active life by the College in 1789, the University moved into the building of the Philosophical Society, on Fifth, below Chestnut. The University of Pennsylvania, after the consolidation of the two original institutions, appears to have made use of the Anatomical Hall until 1800, when the trustees became possessed, by purchase, of the edifice that had been built by the State of Pennsylvania for the accommodation of the President of the United States, at Ninth and Chestnut streets. In 1807 new apartments, in an addition to the original building, were provided for the medical faculty. These apartments were enlarged in 1817, and in 1829 were superseded by the Medical Hall, in which the medical teaching of the institution was given until July, 1873, after which time a building in Ninth street, below Walnut, was occupied until the completion in September, 1874, of the present medical buildings in West Philadelphia.

THE PRESENT.

BUILDINGS AND APPLIANCES.*

The instruction of the Medical Department of the University of Pennsylvania is conducted in the Medical Hall, Laboratory Building, the Hospital of the University, the Laboratory of Hygiene, and the Wistar Institute of Biology and Anatomy. The Medical Hall contains three lecture rooms, the Wistar and Horner Museum, the Histological, Osteo-Syndesmological, Physiological, Pathological, and Pharmaceutical laboratories; besides an assembly room for the students and private rooms for the professors. The laboratory building has its lower floor occupied by the Clinic of Dentistry, and its upper three floors by the two Chemical Laboratories, and the Dissecting Room. All of the lecture rooms and laboratories are heated by steam, and are thoroughly ventilated by currents of air forced into the rooms in such a way as to avoid drafts. They are also brilliantly lighted by electricity.

In all of the laboratories, whether contained in the Medical Hall or

in the Laboratory Building, especial encouragement and facilities are afforded for original research, and for such purpose the laboratories are kept open during the whole year, except some of them which are closed during the months of July and August.

The Wistar and Horner Museum, founded nearly one hundred years ago, is believed to be the largest and richest of the kind in the United States, containing not only a very large number and a great variety of specimens illustrating the normal and morbid anatomy of every part of the human body, but also a large number of preparations in comparative anatomy, and a very extensive collection of drawings and of models in wood, papier-mache, composition, glass, etc. At present the Wistar and Horner Museum occupies a large room in the Medical Hall, but through the generosity of Gen. Isaac J. Wistar, the Wistar Institute of Biology and Anatomy is being erected in immediately opposite to the Medical Hall; in it the Wistar and Horner Museum is to be kept and every facility is to be provided for original research. The noble building is rapidly approaching completion and an endowment fund yielding \$6,000 per annum has also been provided by Gen. Wistar. The formal opening of this great museum will occur in October, 1893.

The Histological Laboratory is furnished with numerous microscopes of good quality, and all apparatus necessary to enable the first-course student to become practically familiar with the most approved methods of microscopical technique, as well as with the normal histology of all the tissues and organs. During the spring months it is open for those who desire a course embracing those refinements and minutiae which of necessity are omitted in the regular winter's work.

The Osteo-Syndesmological Laboratory is devoted to the practical study of the bones and their articulations.

The Physiological Laboratory is furnished with a large variety of apparatus for use in practical physiology. It is in active operation during ten months of the year, so that every facility is afforded advanced students and graduates who desire to make special studies and researches under the professor of physiology.

The Pathological Laboratory is well supplied with microscopes and all appliances required for practical study and original research. It has also a complete outfit for the study of bacteria and of infectious diseases. Each student of the second year is provided with a separate table and microscope, with material and reagents, and receives personal instruction in pathological histology, in mycology, and in the microscopy of urine. Each student of the third year receives advanced practical instruction in morbid anatomy and the making of autopsies. Weekly demonstrations of the gross appearance of specimens, embracing all known morbid products, mostly in fresh condition, together with the microscopic sections, are features of this course.

The practical work during the regular winter session is obligatory on students of both second and third year. Special instruction and guid-





ance in original research are given by the demonstrators to advanced students.

The Pharmaceutical Laboratory is used exclusively for the teaching of practical pharmacy, for which purpose it is furnished with all necessary apparatus.

The Laboratory of Experimental Therapeutics is chiefly devoted to original research, but instruction is also given by the demonstrator to students who desire special courses.

The chemical laboratories are two in number. Each room is 140 feet in length by 40 feet in width. The lower room, is given up to students of the first year, who devote in it three hours each week to the study of qualitative analysis. The course includes chemical manipulations and the detailed study of the chemical reactions of the principal metals, acids, and their combinations, with the general principles of qualitative analysis, especially as they relate to the detection and separation of metals and compounds of importance to the physician. Each student is provided with a separate table and apparatus, and is required to exhibit by formulæ, on paper, all reactions involved in his tests. In the upper laboratory, students of the second year spend three hours per week. The course embraces an introduction to the general principles of quantitative analysis and the principles of volumetric analysis, with the practical examination of urine and animal fluids, and the recognition and recovery of poisons from the animal body, and complex mixtures.

The Anatomical Laboratory or dissecting room, upon the upper floor of the laboratory building, is 140 feet by 40 feet, and is perfectly lighted and ventilated. The tables have stone tops, the floor is made of asphalt, and the washstands and water supply are abundant. Great care is given, not only to cleanliness, but also to the preservation of the cadaver, so that the room is practically without odor, and the danger to the health from dissecting wounds is reduced to a minimum.

In the Laboratory of Hygiene practical instruction is given in the analysis of food-stuffs, drinking-water, and milk, and the investigation of adulterations or deteriorations of the same; in the determination of the hygroscopic and thermo-absorbent properties of the various substances used for clothing; in the examination of decorative materials for poisons; in the solution of problems in sanitary engineering, plumbing, ventilation, etc.; and in practical and experimental bacteriology, disinfection, and prevention of disease.

In the laboratory of Practical Surgery the application of bandages is taught to students in their first year; whilst the use of fracture dressings and surgical operations on the cadaver form the instruction to students in third year.

The corps of teachers in the Medical Department consists of the Medical Faculty proper, and a large staff of other professors, lecturers, and demonstrators, besides various assistants in the Hospital.

For many years past the course of medicine in the University of Pennsylvania has extended over three years, at the end of which period the degree has been conferred upon successful candidates. In 1893, the course is to be extended over four years, the whole period being occupied by a graded instruction, and four years of study being required of the students.

Each academic year consists of a session, beginning the 1st day of October and lasting until early in June.

The first year is largely occupied with work in the various laboratories of chemistry, pharmacy, osteology, histology, and in dissection. The first-year student may also attend clinical lectures in general medicine and general surgery. In the second year, in addition to didactic and clinical teaching, practical instruction is given in medical chemistry, pathological histology, and physical diagnosis. Dissection is continued. Throughout the third and fourth years the student is required to attend the general medical and surgical clinics at the University and Philadelphia hospitals and the clinics in special departments at the former. Special bedside instruction in clinical medicine, including physical diagnosis and laryngology, in surgery, and in gynecology, is given in the third year, as are also opportunities for the practical study of diseases of the eye, ear, throat, and skin, and for acquiring proficiency with the various instruments employed. For this purpose the third and fourth year classes are divided into sections, each of which receives direct personal instruction.

The course of instruction is so arranged as to permit mainly constant introduction of new material while retaining the repetition of essential subjects aimed at by the old methods. The laboratory instruction is so coördinated with the oral teaching as to illustrate the subjects of the lectures. Advanced students are encouraged to make original researches in the laboratories of pharmacy, chemistry, physiology, pathology, and experimental therapeutics.

The general details of the plan of instruction of the four years' course are as follows:

First year.—General Chemistry, Materia Medica and Pharmacy, Histology, Osteology, Anatomy, Physiology, Bacteriology, Medical History and Terminology, Physical Diagnosis, Bandaging, General Clinics (Medical and Surgical).

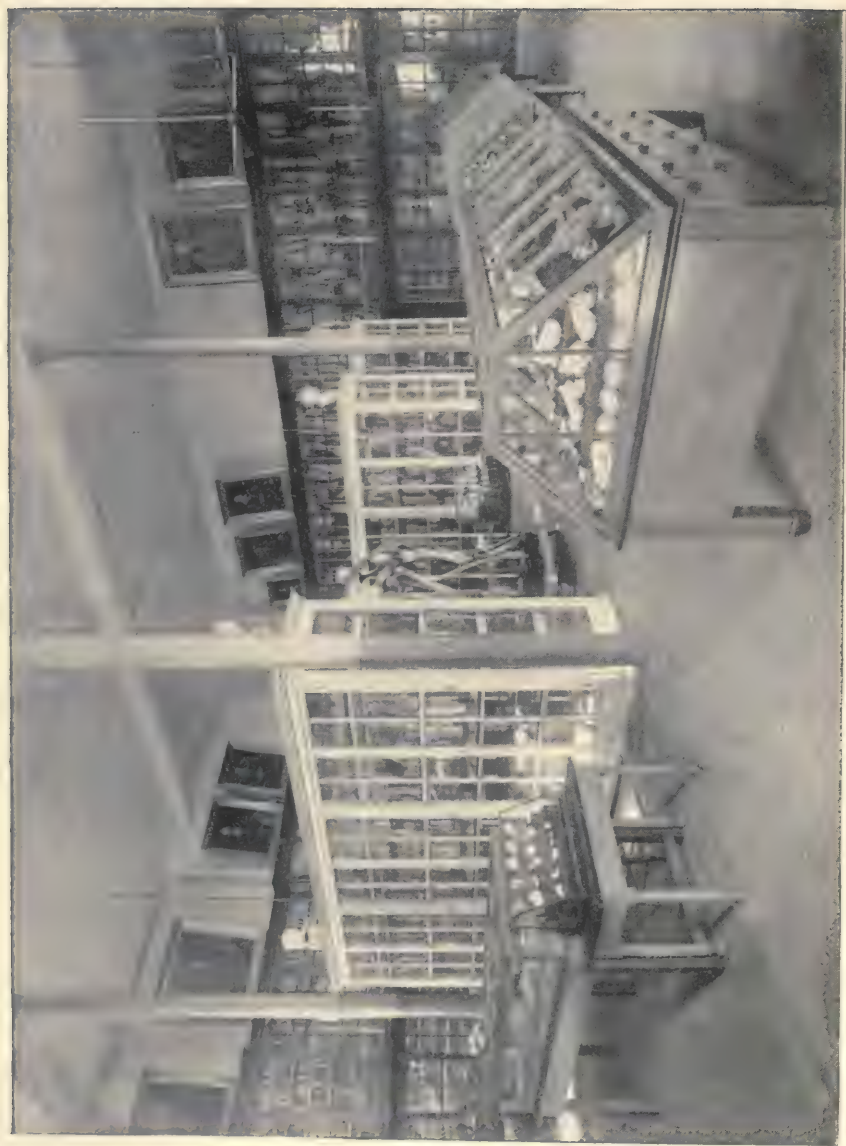
Second year.—Medical Chemistry, Anatomy, Applied Anatomy, Physiology, Pathology, Physical Diagnosis, Therapeutics, Surgery, Obstetrics, General Medical and Surgical Clinics.

Third year.—Applied Anatomy, Pathology, Therapeutics, Surgery, Ward Classes in Surgery, Minor Surgery and Fracture Dressings, Obstetrics, Practice of Medicine, Ward Classes in Medicine, Gynecology, Ophthalmology, Dermatology, Otology, Laryngology (Throat and Nose), General Clinics, Medical and Surgical, including Philadelphia Hospital; Special Clinics: Nervous Diseases, Dermatology, Ophthalmology, Otology, Gynecology, Genito-Urinary Diseases.



CHEMICAL LECTURE ROOM—MEDICAL HALL.





MEDICAL MUSEUM—MEDICAL HALL.

Fourth year.—Hygiene, Practice of Medicine, Operative Surgery, Orthopædic Surgery, Operative Obstetrics, Gynæcology, Autopsies, General Medical and Surgical Clinics at University and Philadelphia Hospitals; Special Clinics: Ear, Eye, Diseases of Women, Nervous Diseases, Diseases of Children and Genito-Urinary Diseases; Ward Classes in Nervous Diseases, Diseases of the Eye, Ear and Skin; Medicine, Surgery, Gynæcology.

GRADUATION.

At the close of the fourth year a student who has satisfactorily passed all the required examinations receives the degree of doctor of medicine on the following conditions:

I. He must be 21 years of age and of good moral character.

II. He must have passed a satisfactory examination in all the branches of the curriculum, must have attended the practical instruction in all departments, and his last course of instruction must have been at this school. (A thesis is no longer required, but students are recommended to prepare theses in competition for the various prizes.)

III. He must have attended at least one case of obstetrics.

IV. After notice of having successfully passed the final examination, he must enter his name on the register of candidates for the degree.

V. He must be present at the commencement, unless excused by the dean of the faculty.



CHAPTER IX.

THE LAW DEPARTMENT.

In 1790 a professorship of law was established in the college department. Mr. Justice Wilson, of the Supreme Court of the United States, having been elected the professor, delivered his introductory lecture on December 15 of that year, "in the quaint old fashioned hall of the Academy," in the presence of President Washington and his Cabinet, the Houses of Congress, the Executive and Legislative Departments of the government of the State of Pennsylvania and the city of Philadelphia, the Judges of the Courts, the members of the Bar, and last, but not least, Mrs. Washington, Mrs. Hamilton, and many other ladies. But Mr. Justice Wilson's course of lectures, though commenced under such brilliant auspices, does not seem to have progressed beyond its first year.¹ No further effort seems to have been made before 1817 to give instruction in law to the students of the University. On March 20, of that year, Charles Willing Hare, esq., of the Philadelphia bar, was elected Professor of Law, and delivered his introductory lecture in the following month. But he, like Mr. Justice Wilson, lectured for but one year. The subject of instruction in the law was again permitted to pass into oblivion, until, on April 2, 1850, the Hon. George Sharswood, then president judge of the district court of Philadelphia, was elected professor of law; and on September 30, of that year, he delivered his introductory lecture. On May 4, 1852, the trustees of the University established a faculty of law, and appointed Judge Sharswood professor of international, constitutional, commercial, and civil law; Peter McCall, esq., professor of practice, pleading, and evidence at law and in equity; and E. Spencer Miller, esq., professor of the law of real estate, conveyancing, and equity jurisprudence. From that day down to the present time the law school has been in active operation. Professor McCall having resigned on June 5, 1860, P. Pemberton Morris, esq., was, in November, 1862, chosen as his successor. In 1868, Judge Sharswood, having been promoted to the bench of the supreme court of Pennsylvania, the Hon. J. I. Clark Hare, his successor as president judge of the district court of Philadelphia (now the Court of Common Pleas, No. 2), was also appointed his successor in the faculty

¹ Historical sketch of the Department of Law of the University of Pennsylvania, by Hampton L. Carson, esq.

of the law school. Professor Miller having resigned his professorship in 1872, E. Coppée Mitchell, esq., was, in 1873, elected to the chair of real estate and equity jurisprudence. In February, 1874, James Parsons, esq., was elected professor of the law of personal relations and personal property. Professor Morris having resigned in 1880, George Tucker Bispham, esq., was elected the professor of equity pleading and practice. Professor Mitchell having died in 1887, C. Stuart Patterson, esq., was elected professor of real estate and conveyancing, and A. Sydney Biddle, esq., was elected professor of practice, pleading, and evidence at law and criminal law. To the great loss of the school, and to the great regret of his colleagues and of all who have ever had the benefit of his instruction in the law, Judge Hare in the spring of 1889 resigned his professorship, but, fortunately for the administration of justice, he remains upon the bench of the court of common pleas over which he has presided since 1868. In May, 1889, Samuel S. Hollingsworth, esq., was elected professor of the law of contracts, corporations, and pleading at law, and George S. Graham, esq., the district attorney of Philadelphia, was elected professor of criminal law. In April, 1891, Professor Biddle died. Hon. George M. Dallas, now a judge of the circuit court of the United States, was elected as his successor. In addition to the changes in the personnel of the faculty, changes have been made from time to time in the division and arrangement of the subjects of instruction in the school; and at the present time the titles of the several chairs in the Faculty are as follows:

1. A professorship of commercial law, contracts, and decedents' estates.
2. A professorship of equity jurisprudence, including the principles of and pleading in equity and orphans' court practice.
3. A professorship of constitutional law and the law of real property and conveyancing.
4. A professorship of the law of torts, evidence, and practice at law.
5. A professorship of the law of contracts, corporations, and pleading at law.
6. A professorship of criminal law.

The present prosperity of the school is due to the intelligent and self-sacrificing labors of those who have heretofore been its professors and those who were associated with them. It is fitting, therefore, that those who have succeeded them should gratefully record their appreciation of the virtues and abilities of their predecessors.

George Sharswood, the first of the professors, was born in Philadelphia on July 7, 1810. He was graduated from the University in 1828. Having studied law with Hon. Joseph R. Ingersoll, he was admitted to the bar on September 5, 1831. On April 18, 1845, he was raised to the bench of the district court of Philadelphia. In 1848 he became by seniority the presiding judge of that court. In 1868 he was elected an associate justice of the supreme court of Pennsylvania, and on January 1,

1880, he became the chief justice of the State. On January 1, 1883, he retired from the bench; and he died in May, 1883. It is unnecessary to remind students of the law or lawyers of his Lectures Introductory to the Study of Law, of his essay upon "Professional ethics," or of his annotations of Blackstone, of Starkie on Evidence, or of Byles on Bills.

Peter McCall, the second of the professors in the order of seniority, was born in New Jersey on August 31, 1809. Having been graduated at the College of New Jersey, he came to the Philadelphia bar on November 1, 1830. He died on November 2, 1880. He was for many years one of the leaders of the Philadelphia bar. Profoundly learned in the law, he was, in his intercourse with all who were brought into contact with him, a model of courtesy.

E. Spencer Miller was born in 1818. He was graduated at the College of New Jersey. After some years of practice in Maryland and afterwards in New Jersey, he was admitted to the Philadelphia bar on May 6, 1843. From then until the day of his sudden death, March 6, 1879, he was engaged in active practice. He was a clear and accurate thinker, untiring in energy, and a very forcible speaker. Professor Mitchell characterized him as the most successful lecturer that the bar of Philadelphia has ever produced.

P. Pemberton Morris was born in Bucks County, Pennsylvania, in 1816. He was graduated at Georgetown College. He studied the law in the office of the Hon. Job R. Tyson, and was admitted to the bar of Philadelphia on February 8, 1840. In 1849 he published a learned treatise on "The law of replevin," which has ever since been regarded as of high authority. In 1856, he annotated Mr. Smith's work on the Law of Landlord and Tenant. He was for many years engaged in active practice, mainly on the equity side of the courts, and those who were so fortunate as to be his clients always found in him a sound and judicious adviser.

Edward Coppée Mitchell was born in Savannah, on the 24th of July, 1836. He was graduated from the University of Pennsylvania in 1855 and came to the bar in 1858. He died in 1887.

He, upon whose weaker shoulders the University has laid the burden of succeeding Professor Mitchell in the Chair of Real Estate Law, may say that every day which he has spent in the performance of his duty as a professor has caused him more and more to appreciate the high character of his predecessor's work, and to realize that Professor Mitchell's untimely death has been an irreparable loss to the University and to the cause of legal education.

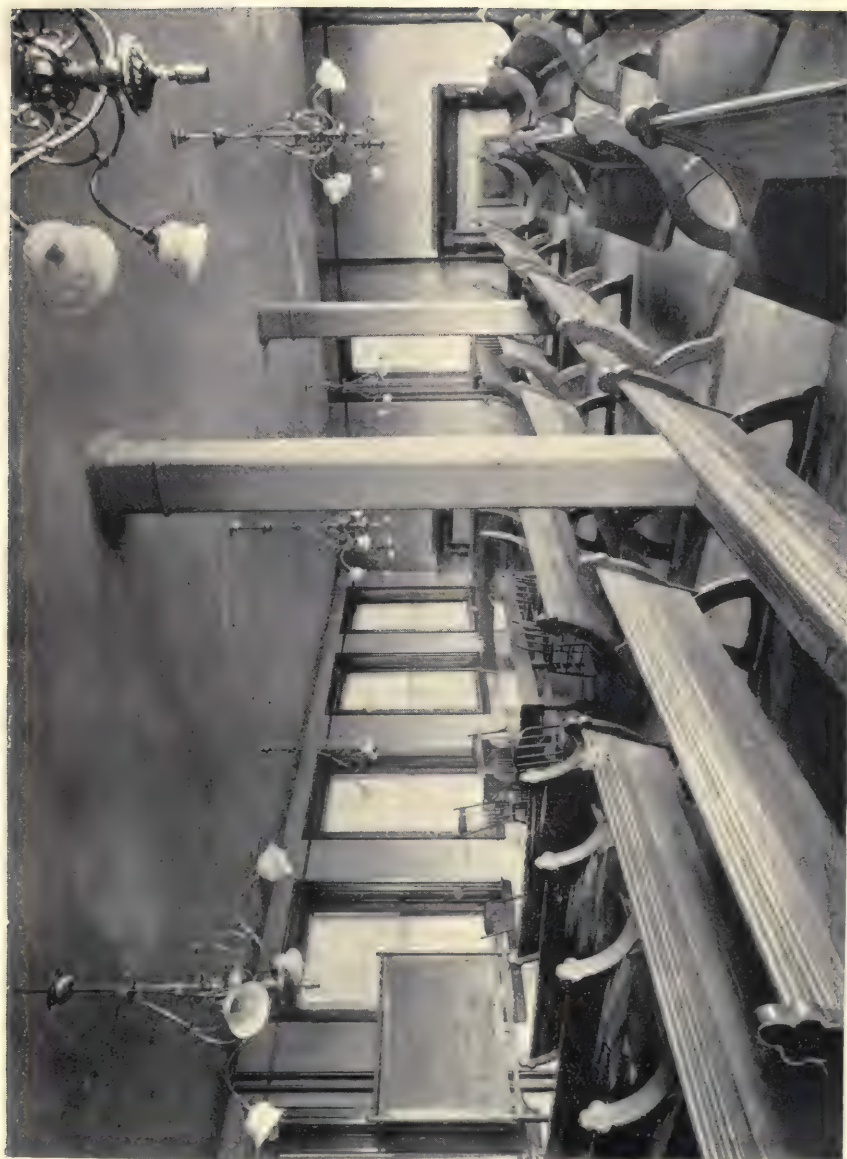
Algernon Sydney Biddle, a son of George W. Biddle, one of the leaders of the Philadelphia bar, was born at Philadelphia 11th of October, 1847. He was graduated at Yale College in 1868 with high honor and admitted to the bar of Philadelphia on 27th of January, 1872. He rose rapidly in his profession. He died at Philadelphia on

8th of April, 1891. His learning in the law and his enthusiasm in teaching were remarkable, and in his too brief career he rendered great services to the University.

It need not be said that a school which numbered among its teachers such men as Chief Justice Sharswood, Judge Hare, Mr. McCall, Mr. Miller, Mr. Morris, Mr. Mitchell, and Mr. Biddle, and those who were associated with them, gave thorough instruction in the law. But those professors, in the performance of their duties, labored under disadvantages which have happily been removed from the paths of their successors. The course was in their time limited to two years, each year including two terms of four months each, with an aggregate of ten hours of instruction each week. Now the course has been extended to three years, with a minimum of twenty hours of instruction in each week. Formerly the lectures and examinations have been conducted at the University buildings in West Philadelphia, at a distance from the homes of the students and from the offices of their preceptors. Now, the Law School has obtained commodious quarters in the building of the Girard Trust Company, at Broad and Chestnut streets, in the business center of the city and in convenient proximity to the homes of the students, the offices of their preceptors, and the courts. The sixth floor of that building is occupied by the lecture rooms, library, and the offices of the executive department of the school. Formerly the law school had not a library appropriated to the use of its students, but now, by the liberality of the family of the late George Biddle, esq., a library, containing complete sets of the English Reports, the Federal Reports, and the reports of the courts of last resort of the several States, has been presented to the University as a memorial of that distinguished lawyer, and this library is yearly receiving substantial additions. The curriculum of the school now includes thorough instruction in the following topics of the law: Constitutional Law, Equity Jurisprudence, Contracts, Bailments, Corporations, Carriers, Real and Personal Property, and Conveyancing, Wills and Administration, Torts, Practice, Pleading and Evidence at Law and in Equity, and Criminal Law. It is to be hoped that before long arrangements will be completed for courses of lectures to be delivered by competent instructors in International Law, Admiralty, Patents and Copyrights, and Medical Jurisprudence.

The requisites of admission to the school are—

1. A satisfactory degree as Bachelor of Arts or Bachelor of Sciences; or,
2. A certificate of preliminary examination from the board of examiners of the bar of Philadelphia; or,
3. A certificate from two or more examiners appointed by the Faculty of Law, setting forth that the student has passed a satisfactory examination in English and American history, the Latin language, and the first two books of Blackstone's Commentaries.



LECTURE ROOM IN LAW SCHOOL.

The course of instruction is strictly graded and the instruction is given by lectures and by frequent examinations. The students are required to read and discuss the leading cases illustrating the subjects of instruction. Moot courts are frequently held, at which questions prepared by the professors are argued.

Under the statutes of the University a degree of bachelor of laws is granted to candidates who, having attended upon the full course of instruction in the Law Department and having prepared and submitted to the faculty an essay on some legal subject sufficient in merit to satisfy the faculty of their fitness to receive the degree, shall have passed a satisfactory examination upon the subjects of instruction. The degree of bachelor of laws *cum honore* is granted to such candidates as may be certified by the faculty to have passed the final examination with distinction. Graduates of the school are admitted to practice in the supreme court of Pennsylvania and in the court of Philadelphia County, upon compliance with the rules of the courts as to registration. There is also a post-graduate course of study, covering two years and involving a philosophical inquiry into the history and sources of the law. Graduates of this course receive the degree of master of laws. A system of fellowships has been created, under which the faculty may select from the graduating class a distinguished student and appoint him a resident "Fellow" to serve for three years, at an annual salary of \$300, and to give instruction in the Law School, under the direction of the dean of the faculty. The aim and end of the system of instruction of the Law School of the University of Pennsylvania is to train students of law so thoroughly that when they shall have been graduated they will be competent to enter into practice at any bar in the United States.

Since the establishment of the Law School in 1850, more than 700 students have been graduated, most of whom have engaged in active practice and by their professional success have reflected credit upon their Alma Mater.

The roll of the school for the academic year 1892-'93 reports present for duty:

Faculty.—The provost, 1; the dean, 1; professors, 5.

Staff.—Fellows, 4; librarian, 1; assistant librarians, 3.

Students.—Third-class, 56; second-class, 50; first-class, 80; special, 16.

Total, 202.

CHAPTER X.

THE TOWNE SCIENTIFIC SCHOOL.

I. HISTORICAL.

A. THE SCHOOL OF ARTS.

The Towne Scientific School, substantially as it now exists, was created by a resolution of the Board of Trustees of the University of Pennsylvania, passed at its meeting on June 1, 1875. Even at this time, however, the educational importance of scientific and technical training had, for twenty-five years or more, occupied the attention of the authorities of the University. At its meeting on the 5th of March, 1850, upon recommendation of the committee on the government of the College, the Board of Trustees had adopted a resolution "that it is expedient to provide for a School of Arts." In May, 1850, the board had resolved "that, for the purpose of establishing a School of Arts in connection with the University, a professor be elected to serve without charge to the University," the committee on the government of the College being requested to make a report on the title of the professorship. In October this committee had recommended that the new chair be called the "Professorship of Chemistry as applied to the Arts." Whereupon the board accepted this report and at once elected James C. Booth to this professorship. Professor Booth entered at once upon the duties of his chair, and in the issue of the University catalogue for 1851-'52 the course of instruction in the "Department of Chemistry as applied to the Arts," is announced as "the same as that of the experimental laboratories now generally attached to European universities." The number of students was limited to 10, each student being "supplied with the requisite apparatus and chemicals to pursue his own experimental investigations, under the direction of the professor, with competent assistance." "The course of experiment is varied," says the prospectus, "according to the special object in view. Familiar lectures are given by the professor, to students exclusively, upon the following subjects: Mineralogy, Geology, Theoretic and Applied Chemistry." The new department was so successful that in 1853 the aid of three assistants was required in the laboratory, the number of students having increased to 13. Instruction in it was continued until the resignation of Professor Booth, in February, 1856.

B. SCIENTIFIC INSTRUCTION IN THE COLLEGIATE DEPARTMENT.

Meanwhile, on the 6th of January, 1852, the Board of Trustees received a communication from the Faculty of Arts relative to a reorganization of the course of instruction in that department. At the April meeting, the committee on the government of the College, to whom this communication had been referred, made a report presenting a plan for the reorganization of the Department of Arts. On the 20th of April, the special committee, to which this report had been referred, reported in favor of its adoption, and on May 4, 1852, after a full discussion, the plan was finally adopted by the board. Most of its provisions relate solely to the Department of Arts, but section 3 is as follows:

If any one shall have attended one course in Natural Theology and the Evidences of Christianity, all the courses in the Departments of Mathematics, Natural Philosophy, and Chemistry, and two courses in Modern Languages, or two courses in Moral and Natural Philosophy, or two courses of Physiology and Natural History, he shall be entitled to receive the degree of Bachelor of Science.

Section 6 reads thus:

Such students as shall have received the degree of Bachelor of Science (of three years' standing) shall be entitled to the degree of Master of Science, on presenting to the Faculty a thesis which shall give satisfactory evidence that the author has continued to devote himself with success to science.

This action of the University authorities is doubtless to be regarded as a concession to the growing demand in the community for a course of education more scientific and less classical in its character; a course preparing the student for a wider range of life work than was to be found within the three learned professions. This parallel and elective course within the Department of Arts went into operation at once, and is announced in the University catalogue for 1852-'53. Several students are enrolled in this and subsequent years as taking this course, and Henry Vethake Totten was graduated in 1854 as the first Bachelor of Science of the University.

C. DEPARTMENT OF MINES, ARTS, AND MANUFACTURES.

A more important movement, however, was in process of development. The special committee, which had reported favorably on April 20, 1852, reported not only a plan for the reorganization of the Department of Arts, but also a plan for establishing a School of Mines, or, as it was amended at the meeting, a School of Mines, Arts, and Manufactures. On the 1st of June, 1852, the Board of Trustees considered very fully the proposed plan, and adopted the report of the committee as follows:

Resolved, that it is expedient to establish a School of Mines, Arts and Manufactures as one of the departments of the University, and such department is hereby established upon the following plan:

- I. The course of instruction in the school to occupy three years.
- II. Pupils may be admitted at the age of 16.

III. The school to consist of the following departments, viz: (1) Natural Philosophy, including General Chemistry; (2) Technical Chemistry, Chemical Analysis and Metallurgy; (3) Pure Mathematics; (4) Civil Engineering, General Mining, Surveying, Art of Mining, Mining Machinery; (5) Geology, Mineralogy and Paleontology; (6) Sketching and Plan Drawing; (7) Theoretical and Practical Mechanics, and its Application to Machinery; (8) The German and French Languages.

IV. The studies to be so conducted by the respective professors as to combine strict theory with the fullest practical instruction; and for this purpose, every opportunity to be taken for visiting with the pupils the various workshops and manufactories within reach, the use of instruments to be taught in the field, and the months of July and August to be devoted to geological excursions and visits to mines.

V. Examinations of the pupils to be held once a year, by the respective professors, in the presence of a committee appointed by the Board of Trustees, of which committee at least one member shall be of competent practical knowledge in the particular department.

VI. An appropriate degree to be given to graduating pupils.

VII. Pupils may attend but one or more departments and shall, on completing their studies, receive a certificate of proficiency in such department or departments. Such certificates to be from the University, by authority of the Board of Trustees.

It was further resolved at this meeting:

That the first, second, sixth and seventh departments shall be under the care and instruction of Professors Booth and Frazer; and the third under the care of Professor Vethake, until otherwise arranged. And that professors shall be chosen for the fourth and fifth departments.

On the 5th of October following, the faculty of the School of Mines, Arts, and Manufactures was completed by the election of Charles B. Trego as professor of geology, mineralogy, and paleontology, and J. H. Alexander as professor of civil engineering and mining. Subsequently on the 26th of October, 1855, upon the resignation of Professor Alexander, the Board of Trustees elected Fairman Rogers to the professorship of Civil Engineering and Mining.

The existence of the two courses of scientific instruction already in operation in the University seems to have retarded the practical establishment of the School of Mines, Arts, and Manufactures. On the 20th of March, 1855, however, a special committee of seven, of which Bishop Alonzo Potter was chairman, which had been appointed in January of that year to consider the subject of a reorganization of the Collegiate Department, made a report in which incidentally a resolution was offered requesting the committee on the government of the College to—

Ascertain as early as may be whether the gentlemen elected to the several professorships in the Department of Mines, Arts, and Manufactures still hold such appointments, and if they do whether they are prepared to enter upon their duties; and if so, to fix the time for opening the schools in the said Department, and announce it by suitable advertisements in the city of Philadelphia, the State of Pennsylvania, and elsewhere as they may deem most fit.

This resolution having been adopted by the board at its next meeting, the committee on the government of the College, at the October meeting, reported vacancies in the chair of pure mathematics and in

that of civil engineering. The latter professorship was immediately filled by the election of Fairman Rogers, as above stated. He entered at once upon its duties, and began on the 19th of November, 1855, a course of twenty-eight lectures upon civil engineering. These lectures were delivered to a class of five students and were concluded on the 28th of January, 1856. The announcement of the Department of Mines, Arts, and Manufactures appears for the first time in the catalogue of the University for the year 1855-'56.

As a proof of the general interest taken in this movement to establish technical instruction in the University, the following communications to the Board of Trustees may be cited. On the 6th of March, 1855, the American Iron Association held its meeting in Philadelphia. One of the objects of the association, as set forth in its constitution, being "to encourage the formation of such schools as are designed to give the young iron master a proper and thorough scientific training preparatory to his engaging in practical operations," the convention passed the following resolution:

Whereas this convention is informed that it is proposed by the University of Pennsylvania to establish a School of Arts and Mines, and that one of its objects will be the proper instruction and training of pupils in such branches of knowledge and practice as are required for the management of iron works: Therefore

Resolved, That in the opinion of this convention the establishment of such a school is eminently to the economical conduct of the iron manufacture and that we will give to it our hearty support under the care of the University.

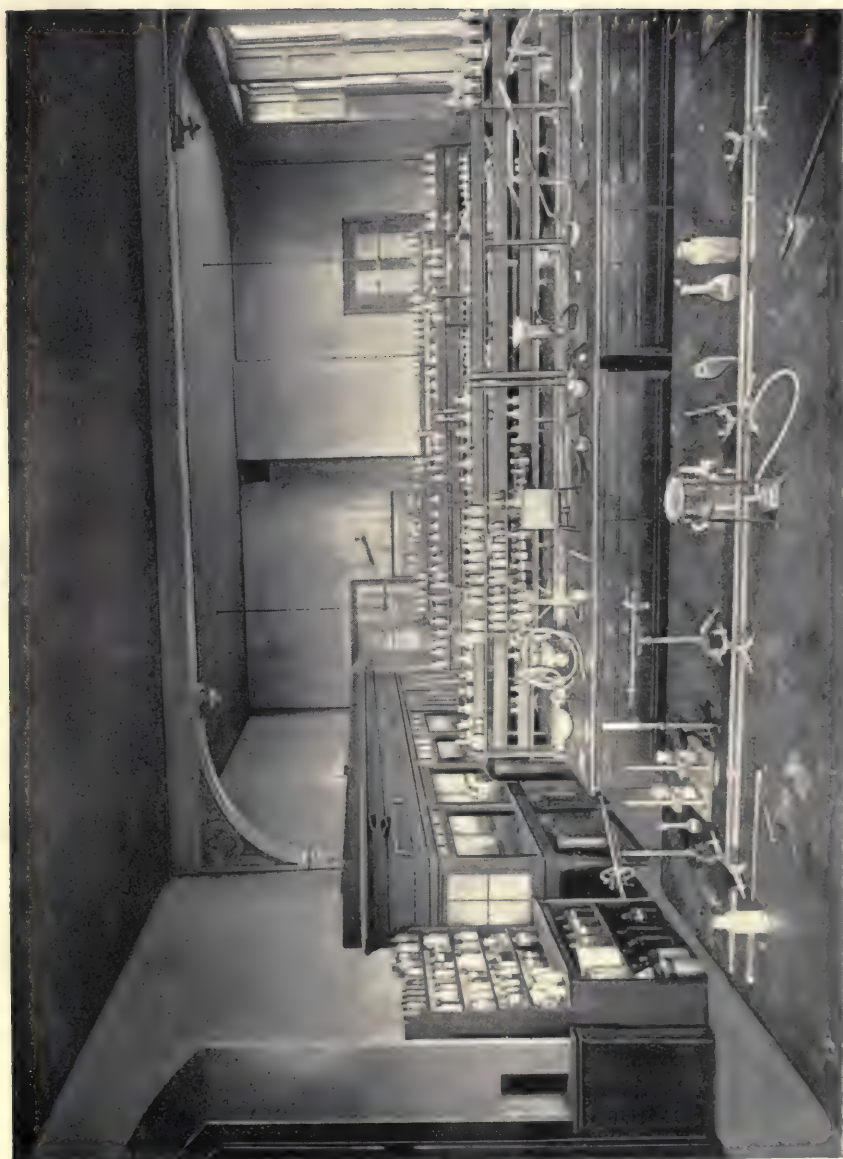
The second communication, dated April 3, 1855, is from the committee of ways and means and informs the board that by the will of the late Elliott Cresson, esq., the sum of \$5,000 is bequeathed to his executors in trust, "to be applied toward founding a school of mines for developing the mineral treasures of my native State."

On the 5th of February, 1856, the committee on the government of the College made a further report on the Department of Mines, Arts, and Manufactures, and recommended that thereafter it be composed of the following professorships:

A professorship of natural philosophy; a professorship of technical chemistry and metallurgy, embracing their application to the manufacture of iron and other metals; a professorship of pure mathematics; a professorship of civil engineering and surveying; a professorship of mining; a professorship of geology, mineralogy and paleontology; a professorship of the fine arts, embracing the elements of drawing and sketching from nature and their application to practical art; a professorship of architecture and practical building; a professorship of theoretical and practical mechanics.

The report closed with the following resolution:

Resolved, That the Department of Mines, Arts, and Manufactures be constituted in the manner and with the professorships recommended by the committee on the government of the College; that nominations to fill the vacant professorships be made at the next stated meeting of the board; and that the same committee be instructed to consider and report such further measures as may be necessary for the organization of the department and the opening of the schools.



This resolution was adopted, and the committee was requested "to take such measures as may be necessary for the efficient organization of the Department of Mines, Arts, and Manufactures, so that the same may go into operation and instruction therein may be given at the University during the collegiate term succeeding the next vacation."

On the 2d of December, 1856, the committee reported that they had "succeeded in making arrangements for a course of instruction in said department, to be carried on during the ensuing winter months." The report goes on to say that—

The faculty of the department consists of Professors Frazer, Rogers, Trego, and Kendall, the three first-named gentlemen having been regularly elected to chairs in the school, and Professor Kendall having cheerfully and promptly entered upon duty at the request of the committee, and under promise that his appointment should be confirmed by the trustees.¹ The course of instruction will for the present term consist of lectures on natural philosophy, mechanics, and chemistry, by Professor Frazer; civil engineering, surveying, etc., by Professor Rogers; geology and mineralogy, by Professor Trego, and mathematics, by Professor Kendall. The term commenced on the 1st instant, and the introductory lectures will all be delivered during the present week. Indeed, the course is intended to be so eminently practical and direct that introductions in the ordinary sense of the term will form but a small part of the instruction given by the professors. The lectures are to be delivered on Monday, Tuesday, Wednesday, Thursday, and Friday of each week, at from 4 to 6 o'clock in the afternoon. The committee congratulate the board on the opening of this important department of instruction, and they invite for it the cordial sympathy, publicity, and confidence of the trustees. It is believed by the committee that the large and important interests involved in the studies of such a department will, when it comes to be known, secure for it a liberal endowment. In order, however, to place it fairly before the public, and to show that it is properly estimated by the guardians of the University, some expenditures should be made; and these, as well as a plan for securing a permanent endowment, the committee recommend, shall be had under the following resolutions:

Resolved, That the committee on expenditures and accounts be directed to inquire into and report on the expediency of making an appropriation of the sum of \$500 for the purpose of defraying any expenses that may be authorized by the committee on the government of the College for establishing, opening, and conducting the Department of Mines, Arts, and Manufactures for its present course of instruction.

Resolved, That the committee on the government of the College be requested to report a plan having for its object the procuring of a proper endowment for the said department.

These resolutions were adopted by the board and the by-laws were amended so as to create a standing committee on the Department of Mines, Arts, and Manufactures. Mr. John C. Cresson, Mr. Henry D. Gilpin, and Mr. Frederick Fraley were appointed such committee, to which Mr. Stephen Colwell and Mr. James Bayard were subsequently added.

The course of instruction thus provided for in the Department of

¹ Professor Kendall had been elected to the chair of mathematics in the Department of Arts August 7, 1855, to succeed Professor Vethake, transferred to the chair of intellectual and moral philosophy. Professor Kendall was elected to the Department of Mines, Arts, and Manufactures January 8, 1857.

Mines, Arts, and Manufactures began on the 1st day of December, 1856, and continued until the 30th of March, 1857; Professor Frazer giving thirty lectures on the Theory of Mechanics and its Application to the Construction of Machines, and on Chemistry, its theories and the properties of bodies and their compounds, with its applications in the arts; Professor Kendall giving thirty lectures on Pure Mathematics and its connection with practical science; Professor Rogers fifty lectures on Civil Engineering and Surveying; on triangulation and compass, linear, mining, and hydrographic surveying; and on construction, strength of materials, beams, arches, and the special applications to railroads, canals, and water-works; and Professor Trego thirty lectures on Geology as applied to the origin, order, and geographical distribution of rock formations and its practical application to mining, manufactures, and agriculture, and on Mineralogy as applied to the constituent materials of rocks, the external and chemical character of ores and mineral substances, their connection with the various rock formations, and their uses in Metallurgy and Manufactures. The number of students enrolled as in attendance upon this course of instruction is twenty-two. The same course of instruction substantially was continued during the winters of 1857-'58 and 1858-'59; the class numbering seventeen students during the former period and thirteen during the latter period. On the 3d of May, 1859, Prof. J. P. Lesley was elected to the chair of mining, and his course on this subject was added to those of the other professors during the winter of 1859-'60, the class numbering eighteen students.

D. COLLEGE OF AGRICULTURE, MINES, ARTS, AND THE MECHANIC ARTS.

On the 2d of February, 1864, the board appointed a special committee "to consider the subject of the endowment by the State from the public lands appropriated thereto, with power to request a portion of them for the University." On the 16th this committee reported—

A plan necessary for the proper application by the University for a portion of said grant, as follows:

The Board of Trustees of the University of Pennsylvania do ordain:

That the Department of Mines, Arts, and Manufactures is hereby established as "The College of Agriculture, Mines, Arts, and the Mechanic Arts" in the University of Pennsylvania, and shall be governed by such rules and regulations as the Board of Trustees of this University shall ordain.

That without excluding other scientific and classical studies, there shall be, besides the present professorships, viz:

Natural philosophy and chemistry.

Technical chemistry and metallurgy (embracing their application to the manufacture of iron and other metals).

Mathematics.

Civil engineering and surveying.

Mining.

Geology, mineralogy, and paleontology.

Fine arts (embracing the elements of drawing and sketching from nature and their application to the practical arts).

Architecture and practical building.

Theoretical and practical mechanics;—

First. A professorship of agricultural chemistry and scientific agriculture.

Second. An instructor in practical agriculture.

Third. A professorship of military tactics and instruction in military drill.

Fourth. A professorship of botany.

That the said College is especially established in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions of life.

This report was accepted and its recommendations adopted by the board.

On the 4th of December, 1866, Prof. C. J. Stillé, who had been elected to the chair of Belles-Lettres and English language and literature on May 1, 1866, sent a communication to the board containing suggestions on the reorganization of the collegiate department. The special committee to which this communication was referred made a report on January 1, 1867, in which, after considering the Department of Arts, they say:

The consideration of these changes and the reasons for them directed the attention of the committee to the Department of Agriculture, Arts, Mines, and Manufactures that was established some years ago, and was partially organized and put into operation. It is believed that such a department is much needed in our city for a thorough course of instruction in the arts mentioned in its title, but it has languished for want of a sufficient endowment. If the proposed changes in the Department of Arts shall be adopted by the trustees there will be a necessity for an appeal to the public for funds properly to endow the additional professorships, and such an appeal should include one for the real Scientific and Technological Schools above named.

The committee presented the following resolution, which was adopted by the board:

Resolved, That application be made to the public for such an enlargement of the means of the University as will enable the trustees to establish in the Department of Arts professorships of history and general literature, of modern languages and physical science, and also a sufficient endowment for the Department of Agriculture, Arts, Mines, and Manufactures.

On the 7th of July, 1868, Professor Stillé was elected provost of the University. The new Department of Science constituted one of the most prominent features in his plans for the development of the institution. In his inaugural address, delivered in the Academy of Music on the 30th of September, he emphasized strongly the importance of this subject, insisting "that a scientific school ought to be established as a distinct department of the University and should be liberally endowed."

Closely connected at this time with the question of a School of Science was the broader question of securing a more desirable location for the University as a whole. On the 2d of June, 1868, the Board of Trustees had taken action as follows:

Resolved, That the committee on endowment be requested to inquire into the expediency of removing the University from its present site, and to ascertain where a desirable location can be obtained for the institution. .

On the 6th of October the committee reported resolutions declaring it expedient to change the location of the University, and appointing a special committee to negotiate with the city of Philadelphia for the purchase of a portion of the city farm in West Philadelphia. This special committee reported on the 4th of January, 1870, that they had secured the passage of an ordinance by which about 10½ acres of the land referred to had been secured to the University. The purchase was at once ratified by the board and the transfer of the property was effected; and on the 1st of March, 1870, the subject of the improvement of this lot of land was referred to the committee on the Department of Agriculture, Arts, Mines, and Mechanic Arts. This committee presented a preliminary report on the 3d of May, embodying "the general features of a plan for the new University building which would secure ample accommodations for both the Department of Arts and the Department of Science." On the 10th day of May the general features of the plans presented were approved by the board and referred back to the committee for completion. The final plan was laid before the board by the committee on the 28th of February, 1871, and was at once adopted. At the same meeting the contract for the new building was awarded, and on the 15th of June, 1871, the corner stone of this building was laid with appropriate ceremonies.

E. THE DEPARTMENT OF SCIENCE.

On the 2d of January, 1872, the Board of Trustees of the University passed a resolution—

That the plan for the organization of the Scientific School, in connection with the Department of Arts, be referred to the Committee on the Department of Agriculture, Mining, Arts, and Mechanic Arts, in connection with the Committee on the Department of Arts.

This joint committee, on the 5th of March, reported a proposed plan of organization, which was adopted and printed, and also a resolution "That the Board of Trustees do hereby establish a new department and faculty of the University, to be called the Department of Science," the Department of Agriculture, Mines, Arts, and Mechanic Arts being thereby abolished and the title of the standing committee being altered to correspond. On the 14th of May resolutions were passed by the board constituting the faculty of the Department of Science, and requesting this faculty to meet and decide upon a programme of studies, and in connection with the faculty of arts to prepare a roster, the programme and the roster to be submitted to and approved by the committee on the Department of Science. The board also resolved—

That the provost shall prepare a special announcement of the organization and course of study in the Department of Science, which, when approved by the said committee, shall be printed and distributed.

In the spring of the year 1872 this special announcement of the plan of organization and courses of study of the new Department of Science was issued. In this prospectus it is stated that—

The design of the instruction is to give a thorough technical and professional training to those who propose engaging in the following, among other pursuits, viz: In chemistry, with its manifold applications to the industrial arts; in mineralogy, geology, and mining; in metallurgy and assaying; in engineering, civil, mechanical, and mining, and in mechanical drawing and architecture. In order that this professional course shall be complete and systematic, and rest upon a broad basis, so that the student at its close may not be a mere *specialist*, but a man of liberal education as well, it has been determined that the course shall be a comprehensive one, extending through four years. The first two years will be devoted not merely to a thorough training in the preparatory and elementary mathematics, physics, chemistry, and methods of physical research generally, but a considerable portion of the time will be given to instruction in certain English studies—history, logic, rhetoric, and oratory—as well as to the modern languages and to mechanical drawing. At the close of these two years the student is presumed to be prepared for studies of a strictly professional or technical character, and he will then select one of four parallel courses in which instruction is given in this department, and during the last two years his work will be confined to the studies of one or other of these courses, in accordance with the plans he may have formed in regard to his future profession.

The new university building was erected on the square bounded by Locust, Spruce, Thirty-fourth, and Thirty-sixth streets. It was opened for the reception of students on the 16th of September, 1872 and was formally inaugurated on the 11th of October following. It is 254 feet in length and 102 feet in depth.

The western wing [said Mr. Sellers, the chairman of the building committee] has been arranged for the use of the Department of Arts, the eastern for that of the Department of Science; whilst certain portions of the center building are intended for the common use of both departments, such as the chapel, library, assembly room, etc. Besides these, the building contains 16 rooms devoted to instruction in chemistry and its applications, 4 to physics, 6 to geology and mining, 4 to civil and mechanical engineering, 3 to drawing, 3 to mathematics, 1 each to English literature, history, intellectual and moral philosophy, Greek, Latin, French, German, rhetoric, and oratory. The laboratories have been fitted up with the most complete modern apparatus and models; museums and other improved means of illustration have been abundantly provided.

The facilities of the new Scientific School are still further stated in the prospectus:

In the basement story there are 2 preparing chemical laboratories and 2 physical laboratories, a metallurgical laboratory, a fireproof furnace room, rooms for gold and silver assaying, and an apparatus and diagram room. In the first, second, and third stories are the chemical and physical lecture and apparatus rooms; laboratories for qualitative, quantitative, and organic analysis; professor's private laboratory and balance rooms; and also large recitation, lecture, and model rooms in the Departments of Civil and Mechanical Engineering, Mining, Mineralogy, Metallurgy, Architecture, and Drawing.

The faculty of the Department of Science, as organized in 1872, was as follows: Charles J. Stillé, LL. D., provost of the University, profes-

sor of history and English literature; J. Peter Lesley, A. M., dean of the faculty, professor of geology and mining; Frederick A. Genth, A. M., PH. D., professor of analytical and applied chemistry and mineralogy; Leonard George Franck, C. E., professor of civil and mechanical engineering; John F. Frazer, LL. D., professor of natural philosophy and chemistry; Persifor Frazer, jr., A. M., assistant professor of natural philosophy and chemistry; E. Otis Kendall, LL. D., professor of mathematics; Rev. Robert E. Thompson, A. M., assistant professor of mathematics, and Librarian; John G. R. McElroy, A. M., adjunct professor of Greek and history; Oswald Seidensticker, PH. D., professor of the German language and literature; F. Amédée Brégy, A. M., professor of the French language and literature; Samuel M. Cleveland, A. M., professor of rhetoric and oratory; Thomas W. Richards, instructor in drawing; Lewis M. Haupt, instructor in mathematics and engineering.

Candidates for admission to the Department of Science must have attained the age of 16 years, and were required to pass examinations in "ancient and modern geography, in English grammar, in arithmetic, and in algebra as far as quadratic equations."

During the first or freshman year and the second or sophomore year, the students in all the courses were instructed in common in mathematics, modern languages, drawing, and the elements of chemistry, geology and mineralogy. At the beginning of the third or junior year each student was required to make an election between the four parallel courses of study prescribed for the Scientific Department, namely:

I. Analytical and applied chemistry and mineralogy. II. Geology and mining. III. Civil engineering. IV. Mechanical engineering.

In the first of these courses, the junior year was devoted to blowpipe and qualitative analysis and to the preparation of the rarer chemical substances, and the senior to quantitative analysis, gravimetric, volumetric, and organic. In the second course the study of general and physical geology occupied the junior year, and that of mining the senior year. In the third course, the junior student continued his mathematics and drawing, and took up in addition applied mechanics and elementary engineering and geodesy; advanced engineering and geodesy being taught in the senior year. The student in the fourth course, in addition to mathematics and drawing, took up in the junior year applied mechanics and the principles of mechanism; these studies being continued through the senior year, with special reference to the designing of machinery. Besides the exclusively technical instruction, the students in all these courses were to receive instruction in physics, in modern languages, in English literature, in history, and in social science.

In the catalogue of the University of Pennsylvania for 1872-'73, seven students are enrolled as "scientific students in the Department of Arts," under the old elective system. Besides these, the students in the new Department of Science number 98, distributed as follows:

Seniors, 8; juniors, 9; sophomores, 21; and freshmen, 45. The names of fifteen students also appear as taking special or partial courses.

The announcement of the Department of Science concludes as follows:

In Pennsylvania, the chief seat of coal-mining and iron-making, and in Philadelphia, the most important focus of American manufactures, such practical instruction in mining, metallurgy, civil engineering, and mechanical science is not only indispensable, but takes precedence of merely didactic tuition, such as was formerly accounted a sufficient supplement to a liberal education. The students of this Department of the University are, therefore, not only taught to comprehend the principles, but to exercise themselves in the technical labor of a professional life of the highest order, before assuming its responsibilities in the outside world. They are trained in outdoor surveying, make specimen geological surveys, visit manufactories, construct models of machines, and will be required hereafter to put ores through metallurgical processes on a larger scale than is possible in the analytical laboratories. Every year will add to the scope and efficiency of the instruction organized on this practical basis.

F. THE TOWNE SCIENTIFIC SCHOOL.

In April, 1873, John Henry Towne, esq., was elected a trustee of the University, and at once took a warm interest in the development of the new Department of Science. At his death, in 1874, it was found that he had provided liberally for this department in his will, leaving to it the residue of his large estate.

At its meeting June 1, 1875, the Board of Trustees took the following action:

A letter having been read announcing that Mr. Towne, by his will, had bequeathed to the trustees of the University of Pennsylvania the residue of his estate, after the payment of certain charges, to form a portion of the endowment fund of the University, the income of the same to be applied exclusively for the payment of the salaries of the professors and instructors in the Department of Science, and a certified copy of said will was submitted to the board; whereupon it was—

Resolved, That the trustees, in accepting the trust confided to them by Mr. Towne, desire to express their grateful recognition of the important services rendered by him, while he was a member of the board, to the interests under their charge.

Resolved, That in endowing permanently the Department of Science with a sum of money larger (it is believed) than has ever been given by any one person to support the teaching of Applied Science, the memory of Mr. Towne ought to be cherished as that of a great benefactor, not only to the University, but also to the community, for the advancement of whose highest interest the University is maintained.

Resolved, That as a proper, just, and grateful tribute to Mr. Towne's memory, and as one means of perpetuating the same, the Department of Science, which he has so munificently endowed, shall be hereafter known as "The Towne Scientific School of the University of Pennsylvania."

Resolved, That the thanks of the Board are justly due to Mr. Towne's family for their concurrence in his desire to establish here a system of scientific education on the largest, most liberal, and permanent basis.

In consequence of this action of the board, the Department of Science has been known since 1875 as "The Towne Scientific School of the University of Pennsylvania."

II.—DESCRIPTIVE.

A. ITS PRESENT ORGANIZATION.

The Department of Science, under the name of "The Towne Scientific School," while retaining substantially the same general organization as that on which it was originally planned, has been from time to time greatly broadened in its scope and materially modified in its details to meet the demands for a wider and more advanced technical education. In 1882 the course of instruction, which hitherto had been only four years in length, was increased to five; at first, by intercalating an additional year between the sophomore and junior years, called the sub-junior year, and, subsequently, in 1884, by placing this extra year at the close of the course and calling it a post-senior year.

Candidates for admission must be prepared in English grammar and etymology, in ancient history and history of the United States, in mathematics through solid geometry and quadratics, in Latin through the first three books of Virgil, and in French or German.

Instruction is provided for in four technical courses, as follows: (1) Pure and applied chemistry. (2) Metallurgy and mining. (3) Civil engineering. (4) Mechanical and electrical engineering.

The instruction given in freshman and sophomore years is common to all these technical courses, consisting in the freshman year of English, of history, of mathematics (including trigonometry), of drawing, and of German or French; and in the sophomore year of these subjects continued, including analytical geometry, calculus, and descriptive geometry, and inorganic chemistry, mass physics, and English literature. Moreover, in junior and senior years, certain studies are required of all students in the Towne Scientific School, whatever the particular course selected by them. These studies include, in the junior year, modern languages, philosophy, mathematics, history, and general physics, and, in the senior year, besides applied mathematics and experimental physics, the subjects of English, of economics and social science, and of metallurgy. The post-senior year is devoted entirely to technical studies in the particular course which the student has elected to pursue.

1. *Course in pure and applied chemistry.*—Instruction in the course in pure and applied chemistry is given by one professor and three instructors, as follows: Edgar F. Smith, Ph. D. (Göttingen), professor of chemistry; Lee K. Frankel, Ph. D., B. S., P. C., instructor in analytical chemistry; Walter J. Keith, Ph. D. (Göttingen), instructor in general chemistry; Julius Ohly, Ph. D. (Göttingen), instructor in general chemistry.

The facilities for instruction in this technical course are very complete. Laboratories are provided in general chemistry, in qualitative and quantitative analysis, in organic chemistry, and in industrial chemistry, in addition to the lecture and recitation rooms, also required. The equipment of the Chemical Department is also excellent. The col-

lections of apparatus and material needed to demonstrate the laws of chemistry and to determine the various chemical constants required, not only in laboratory work but also in research, are considerable. Electrolytic chemical methods have been especially provided for, and extensive collections of chemicals and chemical products have been made to illustrate the applications of chemistry to the industrial arts.

The instruction given in this course may be stated somewhat in detail as follows: In the preparatory year the sophomores receive instruction by practical laboratory exercises covering the principal points in theoretical and general and in organic chemistry. The juniors attend courses in organic chemistry, mineralogy, and qualitative analysis. They also work in the laboratories, making the characteristic reactions of inorganic bases and acids, as well as qualitative separations of the most complex substances. Written reports on the results of their work are required.

The seniors receive instruction by lectures and recitations in all branches of quantitative analysis, applied chemistry, metallurgy, and organic and theoretical chemistry. Practical work, embracing all of the above-named branches, is continued.

During the first term of post-senior year the work of senior year may be continued if deemed advisable. In the meanwhile the subject for thesis may be chosen in order to allow the student time to read up all accessible matter relating to it, so that the greater portion of the second term can be devoted to the necessary experimental researches.

The seniors and post-seniors attend courses of lectures on the application of inorganic and organic chemistry in the industrial arts. These lectures for the most part are given by graduates of the school, who are now engaged in technical occupations in the time of these lectures. The classes also make excursions to chemical works, under the direction of the instructors.

The post-seniors attend lectures on theoretical chemistry and electrolysis applied to quantitative analysis.

2. *Course in metallurgy and mining.*—The course in metallurgy and mining has been placed in charge of the professor of chemistry, Dr. Edgar F. Smith. The instruction is given mainly by Amos P. Brown, B. S., E. M., instructor in metallurgy and mining.

The Department of Mining and Metallurgy is provided with metallurgical and assay laboratories and with drawing rooms for mining engineering, in addition to the usual lecture and recitation rooms. Its equipment includes large and complete cabinets of minerals and geological specimens, besides the collections of materials, models, and drawings required to illustrate the course and to make the work of the student thoroughly practical.

Students in metallurgy and mining are trained to take intelligent care of the ever-growing, important interests represented by these industries. In recognition of the extent of knowledge embraced in this

field, they are given the option of devoting themselves more particularly to either branch. Those who incline to become managers of mines, or examining and reporting engineers, will take more studies in civil and mechanical engineering, and those who possess greater aptitude for chemical studies will devote themselves rather to experimental metallurgy, whilst the lectures provided for the course are participated in by all. A greater thoroughness is expected to result from this provision. This instruction aims to develop the student's power of initiative. During the past year new laboratories have been furnished for students in mining and metallurgy. They contain all that is needed for thorough instruction in the different branches of these subjects.

3. *Course in civil engineering.*—The personnel of instruction of the course in civil engineering is as follows: Edgar Marburg, C. E., acting professor of civil engineering; Walter Webb, C. E., instructor in civil engineering; Charles Worthington, C. E., instructor in civil engineering.

Besides the ordinary recitation and lecture rooms, the department of civil engineering is provided with drawing rooms and with modeling and construction rooms; these are equipped with the instruments, apparatus, and tools required not only for familiarizing the student with the principles taught, but also for enabling him to become practically acquainted with the modes of construction and procedure in the processes of civil engineering in general, including surveying and geodesy.

The students in civil engineering are instructed by recitations, lectures, and practical work. Afternoons and Saturdays are devoted to drawing and practical work in the shop, or to surveying or visiting public or private works, manufactories, etc. During the last year of the course the time is devoted largely to examinations and reports upon engineering works in process of construction, to making estimates and designs for new projects from data collected in the field, and to the preparation of theses.

In visiting shops and manufactories students are required to collect all the practical information possible, and to embody it in a written report, noting particularly any new or special features for economizing time or materials, improved methods of assembling parts, etc., as well as the general plant, apparatus, and facilities for receiving and shipping materials.

The field practice embraces the various problems in chain surveying, the measurement of areas, and the computation of results; line surveys and location, cross sections and levels for estimating quantities, hydrography, topography, with the plane-table, and the solution of such geodetic problems as relate to the orientation of maps.

The course in drawing includes the projection of maps, various methods of representing topography, conventional signs, problems in shades, shadows, and perspective, details of framing, composition, general



PRIVATE ROOM OF PROFESSOR OF CIVIL ENGINEERING—COLLEGE HALL.

drawing for constructions in wood, stone, and iron, special designs, working drawings for modeling, platting, drawing of profiles and cross sections, and drawings for theses.

4. *Course in mechanical engineering.*—The instruction in the course in mechanical engineering is given by the professor in charge of the department, aided by four instructors and assistant instructors, as follows: Henry W. Spangler, Whitney professor of dynamical engineering; A. W. Schramm, B. S., M. E., and L. E. Picolet, instructors in mechanical engineering; H. W. Huffinton (U. S. N. A.), instructor in electrical engineering; David R. Griffith, assistant instructor in mechanical engineering; J. J. Morris, assistant instructor in mechanical engineering.

This department has recently been provided with mechanical and electrical laboratories and shops, and with recitation and drawing rooms, all well equipped with the necessary machinery, apparatus, and tools required for illustrating and investigating the principles of mechanical and electrical engineering, with reference to their practical applications.

These are located in a large building constructed for the purpose in connection with the Central Head and Light Station, from which all the buildings of the University, over a space of forty acres, are supplied with steam heat, forced ventilation, and electricity for power and light. A very large and practical working plant, containing various types of boilers, engines, and electrical machinery is thus made additionally useful in illustration of the teaching of the department.

The instruction for students in mechanical engineering is eminently practical, and is given by recitations, lectures, and exercises in the laboratory. The recitations are principally from text-books, which thus form the basis for the work to be done in each subject. Whenever these are not available the instruction takes the form of lectures, with use of the books of reference in the Rogers Engineering Library and in the private collections of the professors. To render the work of the student regular from day to day, and to assure self-reliance in study and certainty that the principles of the subjects are thoroughly understood, whenever possible, practical problems are given to the class for solution.

The subject of applied mechanics is divided into a number of parts for facility of instruction, and is taught under the following heads:

Graphical statics, under which is taught the general theory of the graphical method of determining the strain in framed structures, and its practical application to numerous examples.

Statics, as applied to rigid bodies, the strength and elasticity of materials, and forms of uniform strength. As an accurate knowledge of this branch of the subject is indispensable to a well-equipped engineer, the class-room instruction is made as exhaustive as possible, and each student is required to carry out, on the testing machine in the

laboratory, a series of experiments in tension, compression, and cross-breaking. The work in this branch is continued until the instructor is satisfied that the subject is thoroughly understood.

Hydrostatics and hydraulics, embracing the equilibrium and pressure of fluids, determination of specific gravity, velocity, and flow in pipes, channels and jets, continuity of flow, etc.

Kinematics, under which head is taught the principles underlying elementary combination of mechanism, theory of the teeth of wheels, and the practical methods of laying them down, cams, belts, pulleys, speed cones, and link work, epicyclic trains, and other aggregate combinations of mechanism.

Hydrodynamics, covering dynamic head, contracted veins, surfaces of equal pressure and head, laws of fluid friction, hydraulic mean depth, resistance of mouthpiece, pressure of jets and water meters. The theory and practice of building water wheels and turbines are also given.

As a sound knowledge of steam engineering is one of the most important parts of a mechanical engineering training, a large proportion of the time is devoted to this subject. The work is divided into several branches, and extends over the last years of the course.

Nomenclature.—An elementary course in the general nomenclature of the steam engine and boiler and their attachments is given in the junior year. The ordinary forms of engines and boilers are described, and the general details of cylinders, valves, pistons, connecting rods, bearings, indicators, gauges, etc., rendered familiar by blackboard sketches and by the practical use of the apparatus in the workshops and laboratories. To make the students more conversant with ordinary forms of engineering appliances, their fundamental differences or similarities, and many of the advantages and disadvantages of their use, a more extended course is given in senior years.

A majority of the pumps, gauges, indicators, dynamometers, speed-indicators, and counters, and other appliances in common use are thoroughly studied. Trade circulars, a complete set of which is kept in the department, are used to a very great extent for examples.

The steam engine.—In junior year is given a full course on the Zeuner diagram, as applied to slide valves; and in the cases of many of the automatic cut-off engines, now so common, the method of applying the Zeuner diagram to designing is taught. The radial gears, such as the Hackworth, Marshall and Joy, are treated in the same way, and in nearly all cases the accuracy of the Zeuner diagram is shown from actual examples.

In the senior year the designing of the parts of the steam engine is begun. All those parts which must be designed from a consideration of the stresses acting on them are first considered, and the method of applying the formulæ of statics shown. Each student is then assigned one of the more familiar types of engines, such as the Armington and Sims, Porter-Allen, Corliss, Ball, or Westinghouse, and is required to

design the principal parts of the engine, using his calculations where the question of strength enters, and studying the particular type for the details, which can only be determined by experience. Working sketches and many of the working drawings of the engines are made.

Steam boilers.—The study of steam boilers is taken up in much the same manner as that of the steam engine. The methods of determining the sizes of the parts from a consideration of their strength, such as the thickness of shell, size of rivets, braces, furnaces, etc., the character and physical properties of the materials used in the construction and the operation of the boilers are discussed. The methods of constructing boilers of different types, with their advantages and disadvantages; boiler mountings, and the proper and improper methods of connection; considerations affecting the life of a boiler; boiler explosions; the methods of determining the efficiency of fuels, of heating surfaces and of boilers, and the usual methods of calculating and erecting chimneys are treated in their turn. Each student is required to make the principal calculations for one of the well-known boilers, and to make working sketches and drawings from his own designs.

Thermodynamics.—In the post-senior year the subject of thermodynamics, as applied to perfect and imperfect gases, is taught, and the principles are applied to the solution of practical questions pertaining to air, gas, and steam engines, refrigerating machinery, injectors, condensers, etc.

The *steam laboratory* has been newly fitted with a complete set of apparatus for carrying out tests in steam engineering. A new steel boiler of 25-horse power capacity is fitted for making boiler tests, the water supply being so arranged that the water can be drawn from tanks or fed through a meter. A 10 by 24 Hamilton-Corliss engine is especially fitted for test purposes. Through the kindness of Mr. Frederick M. Wheeler, the department has been furnished with a surface condenser, so that the steam from the engine can be discharged into the condenser or into the air, thus enabling the students to measure the quantity of steam used after passing through the engine. Indicator rigging is provided, and the department is well supplied with indicators, speed counters and indicators, planimeters, and special gauges, and all apparatus necessary for carrying out routine or special work in this direction. Calorimeters of the various types are in use, and provision is made for comparing and standardizing gauges, indicators, thermometers, and all apparatus used in the tests. This engine is fitted with a brake for absorbing and measuring the power given off by the engine, or it may be connected with a line of shafting in the laboratory for the purpose of running the other apparatus in this department. A Thurston standard oil-testing machine is used for carrying out tests on oils, and the 50,000-pound testing machine and Thurston torsion machine are used for experimental purposes. Dynamometers of different kinds, to fit different experimental work carried out, are provided, so that a

student has an opportunity of studying and experimenting with the apparatus usually used in making mechanical tests.

Shopwork.—A large floor space is set apart for work in wood and metals. Provision is made for the instruction of 10 students in wood work and 10 in iron work at the same time, and a competent mechanic is in charge of each division, under the direction of the head of the department, thus insuring constant and careful supervision of the work of every student. Each bench is supplied with a complete set of the tools necessary to carry on the general work, and special tools are issued as needed. All the work is done to blue prints of working drawings made in the department. The course extends over two years, and the time is equally divided between the two shops. During the junior year the student learns in the wood shop the methods of handling the tools, keeping them in good order, making joints and similar work. A part of the time is spent on the wood lathe. In the iron shop cast-iron blocks are provided, which are finished with the file or scraper, the student getting a good idea of the use of the hammer and chisel. About one-third of the time is spent on the drill-press and lathes, turning, by the aid of the hand tools, to drawings furnished. In the senior year the work done in the wood shop consists of making patterns from working drawings, which have been made by the students from standard machinery or from their own design. In the iron shop the work consists of finishing castings made from the patterns constructed in the wood shop, fitting parts of machinery, the use of hand tools for cutting threads, and a short course in pipe fitting, thus giving an idea of the tools and fittings used in ordinary work. The University does not seek to train students in the use of machine tools, deeming it better to employ available time in the training of hand and brain together by a thorough mastering of the principles governing really manual acts; hence, the laboratory does not include an elaborate equipment in tools, the fashion and use of which are continually changing.

Electrical Engineering.—A course in electrical engineering, extending over parts of two years, has been established in this department. The work begins in senior year with a discussion of quantity, potential, current, resistance, electrostatic measurement, magnetism and magnetic measurement, electromagnetic measurement, and the units adopted in practice. The course then treats of the measurement of currents, the construction, calibration, and use of galvanometers, the measurement of difference of potential, quantity, resistance, a study of batteries, insulation tests and the apparatus used, the constructing, testing, and advantages of different ammeters and voltmeters, measurement of power and efficiency of dynamos and motors, and the efficiency and life of incandescent lamps.

The theory of dynamo electric machines is taken up, and the characteristics of each of the different types are studied. Motors are studied in their theoretical and practical aspects. Lectures are given on elec-



tric lighting, wiring on the different systems, and the theory and practical management of accumulators.

The course in the *electrical laboratory* covers the use of all the test apparatus for measuring currents, resistances, insulation and capacity, the testing of dynamos and motors, storage batteries and commercial ammeters and voltmeters. The apparatus in this department is being rapidly increased, and now contains galvanometers, resistance boxes, keys, and other apparatus from the best American and foreign makers. The classes are limited in size, thereby having the work of each student carefully overlooked by the instructor in charge of the work.

B. DEGREES.

The degree of bachelor of science (B. S.) is given to students in the Towne Scientific School at the end of the senior year. The technical degree of practical chemist (P. C.), mining engineer (E. M.), civil engineer (C. E.), or mechanical engineer (M. E.) is given to bachelors of science in the Towne School at the end of the post-senior year. Alumni of the Towne School, who hold a bachelor's degree, may receive the technical degree corresponding to their special course on completing satisfactorily at any time the studies of post-senior year.

The number of students attending instruction in the Towne Scientific School during the college year 1892-'93 is 292. Of these, the Post-Seniors number 15; the Seniors, 57; the Juniors, 59; the Sophomores, 86, and the Freshmen, 85. Of the Juniors, 23 take mechanical and 18 civil engineering, 10 mining, and 8 chemistry. Of the Seniors, 18 take mechanical and 10 civil engineering, and 19 mining and chemistry. Of the Post-Seniors, 8 are mechanical engineers, 4 civil engineers, and 3 chemists.

FOUR-YEAR TECHNICAL COURSES.

In 1891, four-year technical courses were established in mechanical and electrical engineering, in civil engineering, and in chemistry. The four-year course in mechanical engineering begins in the first year with those subjects which do not require an extended preparation in mathematics, and is intended to give in the early years the necessary mathematics and physics required for more advanced work. No subjects are taken outside of those directly pertaining to the work of the mechanical engineer, and thus a somewhat larger amount of time can be devoted to the strictly technical branch of the work. In this course sufficient electrical engineering is given to make the students familiar with the principal applications of electricity to engineering problems.

The course in electrical engineering begins with the first year, and for the first two years is identical with the four-year course in mechanical engineering. After the end of the second year the class devotes more time to the electrical work, although sufficient mechanical work is retained in the course to enable the students to understand much of the practical details of mechanical engineering.

The course in chemistry during the first year consists in the execution of a rather extended series of experiments upon the nonmetals and metals. The student will only omit those of greater difficulty and such as require a skillful manipulator for their performance. In addition, he will attend lectures and recitations and will be obliged to solve numerous examples based upon the various reactions that he conducts practically. The skill and familiarity with chemical methods acquired in this way will fully prepare him for the work of the second year, which will be mainly analytical, though considerable time will be allotted to the preparation of a well-selected series of inorganic salts.

In quantitative analysis he will be given every opportunity to familiarize himself with pure scientific methods in gravimetric, electrolytic, and volumetric analysis, also with gas analysis and the methods of technical analysis applied in the various branches of chemistry. The instruction in theoretical chemistry will be imparted by lectures; that in applied chemistry by lectures not only by the regularly appointed professors, but also by invited specialists, and further supplemented by frequent visits to chemical plants in this and adjacent cities. The lectures and recitations in organic chemistry will be conducted parallel with practical work upon this subject. The aim will be to have the student prepare typical substances from the whole field of organic chemistry. The most recent methods of analysis peculiar to this field will receive due attention. In the fourth year, the candidate will have the greater portion of his time to devote entirely to the principal subject and will be offered the privilege of prosecuting chemical work in the direction of pure inorganic, organic, or technical chemistry. The solution of some problem in one of these departments will constitute the thesis which he will be expected to prepare before presenting himself for his final examination.

For admission to the four-year courses in mechanical, electrical, and civil engineering the student must be prepared, in addition to the subjects required of all candidates for admission to the scientific department, to pass examinations in plane trigonometry and the use of logarithms in elementary physics and in French or German. For admission to the four-year course in chemistry the only additional subject required is French or German.

Upon the successful completion of the four-year course in one of the subjects above named the student will receive the degree of Bachelor of Science in mechanical engineering, in electrical engineering, in civil engineering or in chemistry, corresponding to the course which he has pursued. These Bachelors of Science of three years' standing, are given the technical degree in the same subject on giving evidence that they have made marked progress in their professions, and on submitting a satisfactory thesis. The degree of Master of Science is conferred upon Bachelors of Science after one year of resident graduate study.

CHAPTER XI.

THE DEPARTMENT OF DENTISTRY.

A quite general impression prevails that dentistry has had the largest share of development in this country; indeed by many it is supposed to have had its origin as a profession in America. The first statement can not probably be disputed, and the reason for this may be found in a combination of physical and mental conditions; the physical in temporary degeneration, doubtless caused by climate, food, mixing of races; in a word, all the disturbing elements consequent upon the developing of virgin land to a new civilization, and the active mentality, the result of the necessities of environment.

The origin of dentistry seems to be lost in remote antiquity, and as the Egyptians were the first to cultivate medicine, so we find the first evidence among that people of dental operations. Herodotus (500 B. C.) writes "of this mother of the arts and sciences" that "some (physicians) are for the eyes, others for the head, others for the teeth, and others for other internal disorders;" but at no period up to the middle of the present century was any attempt made to combine the crude elements and crystallize them into a profession. The work of the eighteenth century, confined to a few able men in England and France, served to rescue the subject from the lower grades of empiricism; but failed, in their single efforts, to raise a standard worthy the respect of scientific men. The practice was mainly confined to two classes, the mechanic and the medically trained surgeon. Both of these were, in their way, imperfect, and made up of incompatible elements. Hence the results were, necessarily, crude in every direction and progress was impossible. This condition of things, in the older civilizations, was transplanted to America with, for a time, similar results.

The first dentist on record in Philadelphia was Mr. John Woofendale, who arrived from England in 1776. He practiced in New York and Philadelphia but a short time, returning to England. From this date (1776) to near the close of the Revolutionary war there was but one dentist in this city, a Mr. Baker. In 1783 two are mentioned in the directory, Mr. John Baker and Mr. John Gardette. Joseph Le Mayeur, a French dentist, came to this country with the French army and established himself in Philadelphia in 1784. He was probably the first in the United States to perform the operation of transplanting teeth (Watson's Annals). From these beginnings, here and elsewhere,

the dental profession had its rise a century ago in this country, and from this humble and isolated origin has grown the splendid array of colleges, instructors, and educated men, a result unparalleled in any epoch and in any profession in an equal period of time.

The earlier training of dental students was necessarily confined to private instruction. The laboratory was the principal if not the only school, and whatever of surgery was required was picked up by observation or was secured by taking the medical degree. The latter course was the one adopted by a limited number after a more or less thorough training in the mechanical laboratory. This gave a somewhat better position to the few; but their efforts were too isolated to effect any marked improvement in the status of the calling, and dentistry failed to receive much respect from the profession to which it was most closely allied, that of medicine. The efforts of such men as Harris, Hayden, Bond, Arthur, Townsend, and Westcott led to the formation of dental associations, and from these grew the Dental College. As early as 1817 Dr. Hayden advocated the idea of a national convention of dentists, but the numbers were too few in the country at that time and lacked that intelligent appreciation of its importance to make the suggestion a success. He accomplished his desire, however, in 1840, and became the president of the first American Society of Dental Surgeons. Dr. Hayden may, therefore, justly be regarded as the father of the American educational methods in dentistry.

The decade from 1830 to 1840 was a marked epoch in the history of dentistry, and from this period may be dated its formation as a scientific body. In 1839 the attempt was made to organize the first Dental College of the world under the title of the "Baltimore College of Dental Surgery." The faculty was originally composed as follows: Horace H. Hayden, M. D., president, principles of dental science; Chapin A. Harris, M. D., dean, theory and practice of dental surgery and theory and practice of dental mechanism; Thomas E. Bond, M. D., dental pathology and therapeutics; H. Willis Baxley, M. D., anatomy and physiology.

This organization was followed in 1845 by the formation of the Ohio Dental College, located in Cincinnati. This by the Transylvania School of Dentistry in Kentucky, in 1850, and the New York College of Dental Surgery of Syracuse, N. Y., in 1852. Both of the two last named had but a short existence. In May, 1850, a charter was granted for the Philadelphia College of Dental Surgery. As this college was indirectly the foundation upon which was eventually reared the Dental Department of the University of Pennsylvania, it is of interest to know of what material the original faculty was composed. It was as follows: J. D. White, M. D., D. D. S., anatomy and physiology; Ely Parry, M. D., D. D. S., chemistry, materia medica, and special therapeutics; Robert Arthur, D. D. S., principles of dental surgery; Elisha Townsend, M. D., D. D. S., operative dentistry, and dean; T. L. Buckingham, M. D.,

mechanical dentistry; D. B. Whipple, M. D., demonstrator of surgical and mechanical dentistry.

But one of the members of this faculty is now living, Dr. J. D. White; but they were all men of marked ability in many directions, and exercised a power which contributed in no small degree to rousing attention to the superior character of American dentistry abroad and in widening its influence at home.

This school had but a four years' lease of life. Difficulties arose between the faculty and the Board of Trustees, resulting in separation and the procurement of a new charter in 1856 under the name of "The Pennsylvania College of Dental Surgery." The same Faculty continued to perform the duties. Since then, through various changes, the school has flourished and still remains one of the prominent educational institutions of Philadelphia. In 1876 the resignation of Prof. James Truman and the death of Prof. E. Wildman resulted in the appointment of E. T. Darby, D. D. S., and Charles J. Essig, M. D., D. D. S., to fill the respective chairs.

The dental colleges of this country in their earlier organization, adopted an almost fatal rule, that five years' actual practice would be regarded equivalent to one year's study at college. This was done with the view of inducing those in practice to take the degree, and thus, it was hoped, all, in time, would be enrolled into a compact and vigorous body. This proved to be an error. While it had the effect with a few, the larger number who took advantage of it were young men, some of whom resorted to false certificates to obtain the end desired. The practical result was that men were being graduated in one session, with little or no previous training. This scandal became of world-wide notoriety, sinking all dental schools into contempt, in the opinion of good men here and abroad, and promised shortly to carry the name of American dentistry to a lower depth than it occupied at its origin. This unpleasant condition naturally led the better class of dental instructors to urge the adoption of some plan for improvement. Having this in view the faculty of the Baltimore College of Dental Surgery, in 1884, requested a conference with the executive officers of the three colleges in Philadelphia. At this conference it was proposed and adopted to call a meeting of delegates from all the colleges of dentistry in the United States to convene in New York August 4, 1884. At this meeting thirteen colleges were represented, eleven by delegates and two by letter. After partially effecting an organization the conference adjourned to Saratoga, N. Y., where the American Dental Association was in session. The final outcome was the formation of "The National Association of Dental Faculties." At this meeting it was ordered that all colleges connected with this association should adopt two regular courses of instruction in separate years, before a final examination. The influence of this meeting was so marked that the principal colleges, whether represented or not, adopted this rule, and at subsequent annual meetings other schools

applied for admission and were enrolled in the membership of the association, until in May, 1890, the membership consisted of twenty-five colleges, the entire number, with one or two exceptions, in the country.

The work of this association would, probably, have failed to effect the desired end but for the fact that the various State legislatures were appealed to by the members of the profession to enact laws regulating the practice of dentistry. This was gradually accomplished, and now nearly all the States under this Government have laws regulating its practice. These vary in character, some requiring examinations of all persons, whether holding a diploma or not; others simply demand the registration of the diploma. The board of examiners of each State sends a delegate to the National Association of Dental Examiners that convenes yearly at the same time and place as the National Association of Dental Faculties and operates in harmony with it and gives legal force to its decisions.

At the meeting of the Association of Dental Faculties held at Saratoga August, 1889, an important advance was made in dental education, the following resolution having been passed:

Attendance upon three full regular courses of not less than five months each, in separate years, shall be required before examination for graduation.

It was subsequently decided that this should go into effect at the beginning of the session of 1891-'92. This decision was subsequently indorsed by the National Association of Dental Examiners and became, by this action, obligatory upon all State boards. This rule of the Association of Dental Faculties placed the dental schools in advance of the medical colleges of the country in point of time. It is to be hoped that this is but the beginning of a series of changes that will eventuate in basing dental education on a sure foundation and in effectually eradicating from its ranks the last element of charlatanry, which has been its opprobrium from the earliest period.

The Board of Trustees of the University of Pennsylvania, upon the recommendation of the Faculty, adopted the three years' course proposed, and it was so stated in the announcement for 1890.

HISTORY OF THE DEPARTMENT OF DENTISTRY, UNIVERSITY OF PENNSYLVANIA.

The advances made in the standard of dental education and the large classes in all the dental schools naturally led the educators of the higher institutions to regard the dental profession and their efforts in a more favorable light, and to look upon them with more respect than they had previously been willing to accord. It was clearly seen that eventually dentistry would either stand as an independent profession or it would become a specialty in medicine. This latter idea was the prevailing one, and in order to hasten the result it was regarded as



vital that all these schools should be absorbed and become part of medical colleges and universities. That this idea met with opposition from both sides, the medical and dental, can readily be understood, but this has so far been outgrown that a large number of the most influential dental colleges are now connected with medical colleges and universities as departments, or closely affiliated with them in other ways. The present outlook seems to be that it will be but a few years before their separation as distinct colleges will cease.

The first school organized as a department of a university was that of Harvard, in 1867, under the title of The Harvard Dental School. This was followed in 1875 by The Dental College of the University of Michigan, and in 1878 the first move was made to organize the Department of Dentistry of the University of Pennsylvania. This is shown in the following resolutions adopted by the Board of Trustees, and as a matter of historical interest they are appended.

PHILADELPHIA, March 6, 1873.

At a meeting of the Board of Trustees the following resolutions were adopted:

Resolved, That there be a Dental Department of the University of Pennsylvania.

Resolved, That this department be under the government of a Faculty of Dentistry, subject to the general rules adopted by the Board of Trustees.

Resolved, That the Faculty consist of the following professors: (A) Professor of Mechanical Dentistry and Metallurgy; (B) Professor of Operative Dentistry and Dental Histology; (C) Professor of Anatomy; (D) Professor of Physiology; (E) Professor of Chemistry; (F) Professor of Materia Medica; (G) Professor of General Pathology; that the chairs of Anatomy, Chemistry, Physiology, Materia Medica, and General Pathology be filled *ex-officio* by the corresponding professors of the Faculty of Medicine.

Resolved, That the lectures be delivered in the Medical Hall and the practical instruction be given in the proposed laboratory building.

The building alluded to in the foregoing resolution is described in the first announcement of 1878-79:

For the accommodation of the Operative Clinic, the Board of Trustees have ordered the erection of an additional building, at a cost of \$55,000. The operating room alone will be 140 feet in length by 40 feet in width, and as the building will not adjoin, though it be in close proximity to the main Medical Hall, it will be lighted by windows on all sides, thus affording 360 feet of window frontage. The arrangement of the windows, so as to command the best light, has received careful consideration, and we may also safely say that it will be unequaled in America. The second and third floors will be devoted to practical laboratory work in chemistry; their dimensions will be the same as the Dental Clinic Room, and will be used in common by the students of both the Dental and Medical departments.

The resignation in 1876 of James Truman, D. D. S., and the death of E. Wildman, M. D., D. D. S., of the Pennsylvania College of Dental Surgery, previously alluded to, was followed by the appointment of Edwin T. Darby, D. D. S., and Charles J. Essig, M. D., D. D. S., to the respective Chairs of Dental Histology and Operative Dentistry and Mechanical Dentistry and Metallurgy. Their duties were performed in this school until 1878, when propositions were made by the Trustees of the Uni-

versity of Pennsylvania looking to the union of this College with the University as a separate department. This proposition was not accepted by the faculty as a unit, but was favorably considered by Professors Essig and Darby, who tendered their resignations as professors in the Pennsylvania College of Dental Surgery, and entered upon the work of organizing the Department of Dentistry of the University of Pennsylvania, thus making three schools in Philadelphia: Pennsylvania College of Dental Surgery, the Philadelphia Dental College, and this Department. The prevailing sentiment at that time was that this new candidate for educational favors would prove a failure, as it was regarded that the field was already over cultivated in this direction. The results have, however, fully justified the wisdom of the originators and reflect great credit on the two gentlemen, Professors Essig and Darby, upon whom the responsibility and labor fell. In the face of almost insurmountable difficulties they carried this school beyond the point of failure and organized it in harmony with the wishes of the governing power of the University, so that its standard of work has always been recognized as in the advance. Thus the formation of the Philadelphia College of Dental Surgery, through the efforts of White, Townsend, Arthur, etc., led up through a continuous chain of circumstances to the formation of this department. This was further increased by the election in 1884 of James Truman, D. D. S., by the Board of Trustees, as professor of dental pathology, therapeutics, and dental materia medica.

On March 15, 1878, the faculty of the department was organized as follows: Charles J. Stillé, LL. D., provost of the University and *ex officio* president of the faculty; Charles J. Essig, M. D., D. D. S., professor of mechanical dentistry and metallurgy; Edwin T. Darby, M. D., D. D. S.; professor of operative dentistry, dental histology, and dental pathology; Joseph Leidy, M. D., LL. D., professor of anatomy; Horatio C. Wood, M. D., professor of materia medica, pharmacy, and general therapeutics; James Tyson, M. D., professor of physiology, *ad interim*; Theodore G. Wormley, M. D., LL. D., professor of chemistry.

Prof. Charles J. Essig was elected secretary, and the work of the department began October of the same year. The faculty at this session adopted the graded course, making the examinations of the first-year students in chemistry and materia medica final at the close of the first year's session.

This first year began with 53 matriculates, and, as a large number of these had had a previous session in other schools, the degree of doctor of dental surgery was conferred at its close, March 1, 1879, upon 25 from the following States and countries: Minnesota, Michigan, Iowa, Scotland, Pennsylvania, Delaware, California, Massachusetts, Saxony, New Jersey, Ohio, Ireland, Connecticut, Illinois, Italy, Switzerland, Canada.

As a matter of history, and also as showing that the then existing

prejudice made it necessary to issue an explanatory circular, giving the reasons for this step on the part of the University, the following quotations are made from the one signed by James Tyson, M. D., secretary of the Faculty of Medicine:

So many inquiries have been made and so much misunderstanding appears to exist with regard to the Dental Department of the University of Pennsylvania in its relations to the Medical Department, that it has been deemed advisable to prepare the following circular letter for those who may desire further information. The Dental Department was instituted on the principle, now admitted by all the better class of dentists and liberally disposed physicians, that dentistry should be a specialty of medicine just as ophthalmology, otology, etc., have become.

The University of Pennsylvania now proposes to establish a course, the first session of which is identical for medical and dental students so far as anatomy, chemistry, physiology, and materia medica are concerned. As a part of this course is included laboratory instruction in chemistry three hours per week, in which the student personally practices the required manipulations under the direction of demonstrators, precisely as he does practical work in mechanical and operative dentistry. In addition to this, the dental student has the regular instruction from the chairs of operative and mechanical dentistry, which the medical student does not, of course, receive. For the present the dental student is excused from the practical work in the histological laboratory (since then this has been added) two hours per week and work in the pharmaceutical laboratory two hours per week. A comparison of these studies with those of the ordinary, or dental curricula, will show that the dental student of the University pursues in his first year a course wider and more thorough than the medical student of all but one or two medical colleges in the United States.

It will be seen from this quotation that the faculty of medicine took the broad position that the dental student must, within certain lines, have a standard equal to that of the student of medicine. This view, so clearly stated by Professor Tyson, has been adhered to, and from time to time changes have been made in the curriculum to advance this standard, and it is expected that this effort will be continued.

In the eleven years of the existence of this department there have been some changes in the faculty. In 1883 James Truman, D. D. S., was elected to fill the new chair created by the Board of Trustees, that of dental pathology, therapeutics and materia medica, Prof. H. C. Wood resigning from the faculty as professor of materia medica. In this year Professor Essig resigned the position as secretary of the faculty, and Professor Truman was elected to that position.

At the organization of the department the rule was adopted permitting the dental student to give notice at the commencement of his second year that he proposed to take a third year and graduate in medicine. This was to be accomplished by increasing the studies of the second year. This rule failed to operate satisfactorily, and in 1887 was changed to one requiring the dental student to take two additional years in medicine after graduating in dentistry.

The Board of Trustees, at the request of the faculty, in May, 1888, added the study of histology to the curriculum, and in 1890 elected George A. Piersol, M. D., professor of normal histology, and John Mar-

shall, M. D., assistant professor of chemistry, and in the same year, 1890, gave to the chief executive officer the title of Dean, and elected Prof. James Truman, the secretary, to that position.

BUILDINGS.

The Dental Department occupies parts of two buildings, one known as Medical Hall and the other the Laboratory Building, alluded to in a previous quotation. The latter fronts on Spruce street. The first floor is devoted to the operating room, the second and third to chemical laboratories, and the fourth to the dissecting room used conjointly by the medical and dental students. The mechanical laboratory is at present on the lower floor of Medical Hall.

The lectures of the dental faculty are delivered in the same lecture rooms used by the medical faculty. Those on chemistry, anatomy, and physiology are taken with the medical students. Dental *materia medica* and the practical branches are given separate hours.

The plan of the operative department gives a room peculiarly well adapted for the purpose. The principal requirement is an ample supply of light. This is quite equal to all present needs.

The great length of the room, coupled with its width, permits the chairs to be arranged in rows without any marked diminution of the light required. The number of chairs at present is forty-six; these consist principally of the so-called "Morrison Chair." This, though usually regarded as of insufficient strength and too expensive for college work, has been found to meet all our requirements and more economical than those ordinarily used in dental schools. This room is again subdivided at its eastern end for the purpose of extracting teeth, both with and without anesthetics. This is appropriately furnished with two operating chairs, one for ordinary extracting and the other, a "Gould Chair," for extractions with anesthetic agents. Each student is furnished with a case (locker) in which to keep his instruments.

The mechanical room is fitted with all the tools necessary in this branch—lathes, vulcanizers, soldering tables, continuous gum furnace, etc. No effort has been spared to make this thoroughly complete, both for plate work and the manipulation of other bases.

PLAN OF WORKING.

One of the greatest difficulties in the teaching of professional work is the practical work. The purely didactic has a value, but can not be compared to object teaching and class demonstration. The idea originally entertained by the founders of the first dental college was to incorporate what is now known as the manual-training idea. This was not only novel at that time, but was an innovation on established usages, and fell athwart the prejudices of centuries. The conception was a bold one, but the experience of fifty years has justified it as not only

being the best but the only mode applicable to the teaching of dentistry. The success attained has, undoubtedly, had its influence in leading to its more general adoption, and has modified to some extent the teaching in medicine. The idea as then formulated was to teach on the living subject, and for the first time patients were invited to submit to the experimental work of students. It is remarkable that such an innovation should have ever found favor even with the class it was proposed to benefit. That this has been accomplished is evidenced by the fact that probably at least 22,000 patients have been treated in the three schools in Philadelphia the past winter. The estimate is based on the exact figures of this department for 1891-'92, and does not include patients for the extraction of teeth. So much has this grown and so much has confidence been established that it has become a serious difficulty to confine it within proper limits.

The training of inexperienced students is necessarily perplexing. As they are not required to undergo preliminary practice with preceptors, it follows that the teaching of the elementary branches must be undertaken by this department. To accomplish this the first-year men are divided into sections under proper demonstrators, and are taught the principles of filling teeth out of the mouth before they are permitted to undertake the same operation on the living subject. The same plan is pursued in the mechanical work. This preliminary training establishes confidence sufficient, at least, for the minor operations. This preparatory term serves also an excellent purpose in giving confidence to the patient. From these small beginnings the student is led gradually step by step in his manual-training work, until he is ready to manage difficult cases and to assume the most serious responsibilities. Hence, when the dental student graduates he differs from some other professional men, in that he starts out fully equipped to meet all conditions, and has not to look forward with grave anxiety to his possible success in the cases that will daily occur in practice.

Though dentistry is still young as a profession it is divided into specialties. The prosthetic, or mechanical, is now followed by a number whose taste leads to that exclusively as a life work. The extraction of teeth has also become a specialty, largely due to the introduction of nitrous-oxide as an anesthetic. Continuous-gum, porcelain on platinum base, has its special workers, and more recently the so-called bridge work has its favorites who devote themselves almost exclusively to it. To teach these distinct specialties requires skilled assistants. This department has, fortunately, been able to secure the ability necessary from its own graduates, and the sections, therefore, have made most gratifying progress in these advanced mechanical studies, and has given them at the same time an ample field for the gratification of their individual tastes.

STATISTICS.

The number of matriculates from 1878-'79 to 1891-'92, 1,495; graduates from 1878-'79 to 1891-'92, 699.

These graduates were divided as follows: Alabama, 1; Australia, 4; Austria, 1; Bahamas, 2; Brazil, 15; Buenos Ayres, 1; California, 7; Canada, 12; Connecticut, 21; Colorado, 1; Chile, 1; Costa Rica, 2; Cuba, 25; Delaware, 6; Denmark, 1; District of Columbia, 4; Ecuador, 2; England, 11; Florida, 1; France, 3; Georgia, 3; Germany, 26; Guatemala, 1; Haiti, 2; Holland, 1; Illinois, 27; Indiana, 5; Iowa, 11; Ireland, 1; Italy, 2; Kansas, 2; Kentucky, 4; Louisiana, 2; Massachusetts, 31; Maryland, 3; Mexico, 2; Michigan, 3; Minnesota, 5; Mississippi, 1; Missouri, 2; Nebraska, 2; New Hampshire, 9; New Jersey, 13; New York, 68; New Zealand, 1; New Brunswick, 2; Nicaragua, 3; North Carolina, 3; Norway, 3; Nova Scotia, 5; Ohio, 16; Pennsylvania, 243; Puerto Rico, 2; Prince Edward Island, 3; Rhode Island, 4; Saxony, 1; Scotland, 8; South Carolina, 2; Sweden, 1; Switzerland, 12; Spain, 1; Tennessee, 1; Texas, 1; Turkey, 1; United States of Colombia, 5; Vermont, 3; Washington, 5; West Indies, 3; West Virginia, 2; Wisconsin, 18; Wyoming, 3.

Work in Operative Department.—The recording of daily work in the department was not attempted prior to the session of 1884-'85, hence the statistics apply only to the period since that time.

Year.	Gold fillings.	Other operations.	Patients.
1884-'85.....	4,380	6,652	4,898
1885-'86.....	4,010	8,519	5,190
1886-'87.....	3,916	9,260	4,825
1887-'88.....	4,392	10,224	5,062
1888-'89.....	5,162	11,624	5,062
1889-'90.....	5,254	11,750	7,482
1890-'91.....	5,172	14,645	7,996
1891-'92.....	5,533	15,653	8,536

Gold used in filling.—This record has only been kept since 1886. 1886-'87, 50 ounces (4 pounds 2 ounces); 1887-'88, 52 ounces (4 pounds 4 ounces); 1888-'89, 67 ounces (5 pounds 7 ounces); 1889-'90, 66 ounces (5 pounds 6 ounces); 1890-'91, 72 ounces (6 pounds); 1891-'92, 69 ounces (5 pounds 9 ounces).

Mechanical work.

Year.	Cases made.	Patients.
1884-'85.....	392	313
1885-'86.....	667	494
1886-'87.....	647	512
1887-'88.....	687	634
1888-'89.....	712	684
1889-'90.....	733	702
1890-'91.....	981	841
1891-'92.....	794	698

Special report on crown and bridge work.—This work was first placed under the care of a special demonstrator, Fred. A. Peeso, D. D. S., during the session of 1889-'90. Whole number of teeth replaced, 292; gold crowns, 145; Logan crowns, 9; bridges, 33 (138 teeth); amount of gold used in the above, \$504.52.

Bridge work is made exclusively on gold, using roots or teeth as piers, and extending the gold across, depending exclusively for strength upon the piers and the stiffness of the piece.

The first session of the three years' course decided upon opened 1891-'92 with a freshman class of 62. This was an increase over the estimated number and amply justified the wisdom of the change as far as members were concerned. The present session (1892-'93) exhibits a still further increase to 70, with a combined class in first and second year of 145.

The completion of the organization of the third year (1893-'94) will doubtless increase the number to that secured under the rule of two years.

The results thus far attained have been gratifying as evidencing the fact that the adoption of a higher standard of training, if judiciously arranged, can not fail to be of advantage in every direction, and must encourage the belief that a still further advance may be possible.

Whatever the future may have in reserve the past is full of satisfaction that the University of Pennsylvania has fostered, in all its departments, a constant feeling that the present is but one step onward, and that others must be taken as the necessity seems to demand.

CHAPTER XII.

THE WHARTON SCHOOL OF FINANCE AND ECONOMY.

In the inaugural address of Provost William Pepper, February 22, 1881, it was announced that a School of Finance and Economy in the University of Pennsylvania had been projected by Mr. Joseph Wharton, of Philadelphia. At the meeting of the board of trustees, March 1, 1881, Mr. Wharton's plan for such a school was formally accepted, subject to conditions named by the founder of the school. He is a native Philadelphian of large wealth and general culture and an active, successful manufacturer, interested in public affairs. His views on subjects of importance in economic science are known by several monographs. Feeling dissatisfied with the results of the instruction in practical affairs given in American colleges, his first thought was to establish a chair of political economy. This idea was elaborated by him in the School of Finance and Economy. Mr. Wharton's project declares that the School of Finance and Economy should bear a family name honorable since the foundation of the city of Philadelphia, and the purpose of the school is—

To provide for young men special means of training and of accurate instruction in the knowledge and in the arts of modern finance and economy, both public and private, in order that, being well-informed and free from delusions upon these important subjects, they may either serve the community skillfully as well as faithfully in offices of trust, or, remaining in private life, may prudently manage their own affairs and aid in maintaining sound financial morality—in short, to establish means for imparting a liberal education in all matters concerning finance and economy.

In the organization of the school provision is made for instruction in accounting or book-keeping in all its varied forms for private individuals and commercial and banking firms, manufacturing establishments, and banks; also in the modes of keeping accounts by executors, trustees, and assignees, by the officials of towns and cities, and by the several departments of the State or General Government. The meaning, history, and functions of money and currency were to be taught, "showing particularly the necessity of permanent uniformity or integrity in the coin unit, upon which the money system of the nation is based; how an essential attribute of money is that it should be hard to get; the nature of and the reasons for interest or hire of money and rents; the advantages of an adequate precious-metal fund for settling international balances, as well as for regulating and checking by redemption the paper money and credits of a modern commer-

cial nation; how such metallic hordes are amassed and defended; the extent to which paper money may be advantageously employed; the distinction between bank notes and Government notes; the uses and abuses of credit, both private and public; the uses and abuses of bills of exchange, letters of credit, and promissory notes; the history of banking, and particularly of Government banks; the advantages and dangers of banks of issue, banks of deposit, and savings banks; how the functions of different sorts of banks may be combined in one, and how any of them may be banks of discount; the functions of clearing houses; the phenomena and causes of panics and money crises; the nature of pawn establishments and of lotteries, and the nature of stocks and bonds, with the ordinary modes of dealing therein."

The history and practice of modern taxation, as distinguished from the plunder, tribute or personal service, which it for the most part replaces, is a subject for study, including "the proper objects and rates of taxation for municipal, State or national purposes; the public ends for which money may be properly raised by taxation; the nature of direct and indirect taxation, of excise, of customs or import duties, of export duties, of stamps, of income tax; the modern methods by which taxes are usually levied; the influence exercised upon the morality and prosperity of a community or nation by the various modes and extents of taxation; the effects upon taxation of wars and of standing armies; the extent to which corporations should be encouraged by the State, and to what extent they should be taxed as compared with individuals engaged in similar pursuits."

It should be the duty of a professor to "teach how industries advance in excellence or decline and shift from place to place; how by intelligent industry nations or communities thrive; how by superior skill and diligence some nations grow rich and powerful, and how by idleness or ill-directed industry others become rude and poor; how a great nation should be, as far as possible, self-sufficient, maintaining a proper balance between agriculture, mining, and manufactures, and supplying its own wants; how mutual advantage results from the reciprocal exchange of commodities natural to one land for the diverse commodities natural to another; also the nature and origin of money wages; the necessity for modern industry of organizing under single leaders and employers great amounts of capital and great numbers of laborers, and of maintaining discipline among the latter; the proper division of the fruits of organized labor between capitalist, leader, and workman; the nature and prevention of 'strikes'; the importance of educating men to combine their energies for the accomplishment of any desirable object, and the principles upon which such combinations should be effected."

A professor or instructor upon elementary and mercantile law should teach the Constitution of the United States and of Pennsylvania; the principal features of United States law concerning mercantile affairs,

partnerships, and corporations; of so-called international laws; of the law of common carriers; the nature and operation of fire, marine, and life insurance; the principal features of State law concerning inheritance, conveyance of land titles, mortgages, and liens—in brief, the history and present status of commercial legislation, and the directions in which improvements may be hoped and striven for, particularly as to harmonizing or unifying under United States laws the diverse legislation of the several States of this Nation; the manner of conducting stockholders' and directors' meetings, as well as public meetings; the rules governing parliamentary assemblies, the routine and forms of legislative bodies.

Elocution should be taught and practiced to the extent of habituating the students to clear, forcible, and unembarrassed utterance before an audience of whatever they may have to say, not in such a manner as to promote mere rhetoric or prettiness. Athletic exercises within moderate limits should be encouraged, as tending to vigor and self-reliance. Latin, German, and French, and sound, general knowledge of mathematics, geography, history, and other branches of an ordinary good education must be acquired by the students, but these points are not here dwelt upon because it is desired to direct attention to the peculiar features of the school.

This sketch of the instruction to be given in the school is not to be regarded as precisely defining, much less as limiting, that which shall be there undertaken and carried on, but rather as indicating its general scope and tendency, the true intent and meaning being that instruction shall be carefully provided for and regularly given in this school at least as full and thorough as is above set forth, and substantially as there stated.

All the teaching must be clear, sharp, and didactic; not uncertain nor languid. The students must be taught and drilled, not lectured to without care whether or not attention is paid; any lazy or incompetent student must be dismissed.

Though the special curriculum should probably at first be arranged to occupy three years, as has been suggested above, this term might hereafter be extended, or post-graduate instruction introduced, if experience should so dictate.

The dean and professors or instructors are to constitute the faculty of the school, and are to administer its discipline, as is done by the dean and faculty of the other departments of the University, subject to such general rules as shall from time to time be established for the University by the Board of Trustees.

The general tendency of instruction should be such as to inculcate and impress upon the students—

(a) The immorality and practical inexpediency of seeking to acquire wealth by winning it from another rather than by earning it through some sort of service to one's fellow-men.

(b) The necessity of system and accuracy in accounts, of thoroughness in whatever is undertaken, and of strict fidelity in trusts.

(c) Caution in contracting private debt directly or by indorsement, and in incurring obligation of any kind; punctuality in payment of debt and in performance of engagements. Abhorrence of repudiation of debt or inconsiderate incurring of public debts.

(d) The deep comfort and healthfulness of pecuniary independence, whether the scale of affairs be small or great. The consequent necessity of careful scrutiny of income and outgo, whether private or public, and of such management as will cause the first to exceed, even but slightly, the second. In national affairs this applies not only to the public treasury, but also to the mass of the nation, as shown by the balance of trade.

(e) The necessity of rigorously punishing by legal penalties and by social exclu-

sion those persons who commit frauds, betray trusts, or steal public funds, directly or indirectly. The fatal consequences to a community of any weak toleration of such offenses must be most distinctly pointed out and enforced.

(f) The fundamental fact that the United States is a nation, composed of populations wedded together for life, with full power to enforce internal obedience, and not a loose bundle of incoherent communities living together temporarily without other bond than the humor of the moment.

Each student intending to graduate should prepare an original thesis upon some topic germane to the instruction of the school, such as the great currents of the world's exchanges, past and present; the existing revenue system of Great Britain, France, Mexico, Japan, or some other modern nation; the revenue system, at some definite period, of Athens, Rome, Venice, or other ancient or mediæval nation; the relative advantages of monometallic and of bimetallic money; the Latin monetary union; the land-credit banks of Germany; life insurance, tontines, annuities, and endowments; reciprocity and commercial treaties; the nature of French societies generales, anonymes, and en commandite; the banking system, past and present, of some specified nation; the advantages and disadvantages of attempts of employers to provide for the wants of their workmen beyond payment of stipulated wages.

In style the thesis should be lucid, terse, and sincere, showing mastery of the subject, with appropriate and logical arrangement of parts, leading up to definite statement of conclusions reached. The chirography must be neat and legible.

For the best thesis, and also for the best general proficiency in the studies taught in the school, should be given annually a gold medal weighing about one ounce, to be called, respectively, Founder's Thesis Medal, and Founder's Proficiency Medal, the same to be awarded by the dean and professors or instructor in council.

This school is intended to form an integral part of the University of Pennsylvania, its dean and professors or instructors to be appointed by the trustees of that University, its functions to be exercised under the general oversight of the provost and trustee, and its specific course of instruction to be determined by them; its diplomas to be countersigned by him; its funds, however, to be kept absolutely distinct from those of the University, and to be kept separately invested by the trustees of the University, in the name of this school, to be applied only to its own uses and not encroached upon in any manner for any debt, engagement, need, or purpose of the University.

Since this school will require no house accommodation except for classrooms, the use of which it is expected the University will freely grant, none of its funds must be expended in building or for paying rent.

An endowment capable of yielding \$6,000 per annum would seem to be necessary and adequate. Forty students, if at \$150 per annum each, would contribute a similar sum.

From this revenue of \$12,000 per annum, the dean might be paid \$3,000, and each of the professors or instructors \$1,500 per annum, thus consuming \$10,500 and leaving \$1,500 per annum from which to accumulate gradually a safety fund equal to at least one year's expenses, also to buy books and to pay for premiums and for publication of treatises. The interest of this safety fund might properly be applied to pay to the treasury of the school for the tuition of those admitted to free scholarship; the number of which would thus be limited by the amount of such interest, but, besides the other requisites for admission, sound physical health and high probability of life must be indispensable conditions for the enjoyment of a free scholarship.

Before so many as forty students are in attendance the number of instructors may be reduced by running the subjects together. When more than forty attend, the instruction may be expanded, the salaries advanced, or the safety fund increased as the trustees may think most expedient. During the first years, before all the classes are under tuition, the instruction will naturally be condensed, fewer professors or instructors, perhaps, be required, and the safety fund thus have opportunity for ac-

cumulation. It is not expected that the University shall consume its own means for the support of the school, further than to provide classrooms.

The school must exemplify its teachings by always keeping its expenses surely within its income, except that in emergencies it may consume any part of the principal of the safety fund, the same to be afterward replaced as soon as practicable.

It is interesting to compare Mr. Wharton's plan for his school of Finance and Economy with Franklin's Sketch of an English School. Each is utilitarian in its purpose, each seeks to equip the students to do well some part of the world's legitimate work; each mentions the incentives of ambition, success, and worldly wealth, as among the treasures of the goal. Franklin would give the children who excelled, prizes of gilt books, or, as in Boston, of gold medals. Mr. Wharton would give annually for the best thesis and for the best general proficiency taught in the school, a gold medal, to be called the "Founder's Thesis Medal" and the "Founder's Proficiency Medal." Mr. Wharton in endowing the school gave a fund sufficient for its inauguration, but fixed its success upon the energy, ability, and fidelity of the University, of which it is conditionally an integral part. The school must exemplify its teaching by always keeping its expenses within its income. These marks are all of the Franklin order, and probably no department of the University founded since Franklin's time is in more perfect harmony with his utilitarian notions. The history of the school shows that the founder's plans were wise, and its success, that such a school was needed.

In 1883, a faculty was gathered which began the administration of the school as closely as possible according to the plan of its founder. Albert S. Bolles, PH. D., widely known in financial circles and as an author of numerous books on law, banking, and finance, was chosen professor of mercantile law on the 6th of February, 1883. He was instrumental in the creation of two new professorships in the University; that of American history, soon after filled by the election of John Bach McMaster, and that of finance and administration filled by the election of Dr. Edmund J. James, and it was in the Wharton School of Finance and Economy that for the first time in this country the subject of American history was made of sufficient importance to fully occupy the time of a professor.

When the School of American History and Institutions was founded ten years later, Prof. McMaster was transferred from the Wharton school to that department.

The election of Prof. James proved of the highest importance to the School and to the University. Prof. James is identified with the best educational movements in the country, and has been able to concentrate at the University of Pennsylvania the coöperative labors of many men and of many minds in the interests of sound learning. Largely through his efforts the Wharton School was transformed from a project on paper to a living educational power. As an instance of this it should be recorded that Prof. James as founder of the American Academy of Political and Social Science has created an



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academic body, with a membership throughout the United States and in Europe, interested in all subjects pertaining to finance and political economy; and although this Academy is wholly distinct from the Wharton School, yet the ideas which are sought to be examined in the Wharton School and by the Academy are the same. It may be said therefore that the American Academy of Political and Social Science is a product of the Wharton School at the hands of one of the eminent members of its faculty.

It should also be said that the Wharton School faculty has been in sympathy and close touch with the American Society for the Extension of University Teaching, and that society has been able to reach the community in and about Philadelphia and at distant points by means of well organized courses of lectures in social science, American and European history, in literature, in the natural sciences, and in political economy. The lecturers in social and political science and in American and European history have been, with few exceptions, identified with the work of the Wharton School; its faculty and fellows have provided instruction in these subjects for the University Extension centers affiliated with the American Society for the Extension of University Training.

The American Academy of Political and Social Science, with a membership of 3,000, publishes its *Annals* bimonthly and reaches probably 10,000 readers. The contributors to the *Annals* are eminent specialists in Europe and America, and the value of the *Annals* is fully appreciated by libraries, newspapers, specialists, and general readers. It is a means for a high order of instruction in political and social science. It is edited by Prof. James, with the assistance of two professors in the Wharton School, Roland P. Falkner and James Harvey Robinson. By means of this Academy and its *Annals*, and through the instrumentality of the American Association for the Extension of University Teaching, the Wharton School reaches hundreds of thousands of people, who are the recipients, in this manner and through this agency, of the best modern academic instruction on the principles and literature of finance, political economy, and social science.

This is not the whole influence of the School; it has increased in membership and has attracted a class of students of a high order of intellect, in the University and from other colleges and institutions and its graduates have met with uniform success upon their entrance into the world of business or upon professional life. Therefore the Wharton School means an education for such a country as ours. It conforms soundly with the best notions formulated by Franklin, and is in accord with the wants of our time. That the Wharton School was a creation in due time is suggested by the founding of two schools of political and social science contemporaneously with it. The Columbia School of Political and Social Science was opened October 4, 1880, and the School of Political and Social Science of the University of Michigan was opened a year later.

As long ago as 1865 the legislature of South Carolina, in reorganizing the college at Columbia under the name of the University of South Carolina, provided for a school of history, political philosophy, and economy, which was probably the first provision for a school of this kind in this country.

The causes which led later to the founding of the School of American History and Institutions led also to the founding of the Wharton School, namely, the specialization of educational interests.¹ Jefferson was the first American to plan technical schools in the University, and it is an interesting suggestion that with the wide advancement of the nation in population and wealth, and with the necessary coöperative agencies working out the great social, political, and economic changes of the country, it is necessary that technical schools should be founded, not only in chemistry, biology, medicine, dentistry, mining engineering, law, and theology, but also in history, political science, language, and economics. The whole tendency in higher education in this country since the civil war is toward and in the foundation of such technical schools. The Wharton School of Finance and Economy is such a school.

The School has the advantage of adequate library facilities and location in the chief manufacturing city of the country. It also has the advantage of nearness to the great cities of the Atlantic seaboard, whose libraries and economic conditions are easily accessible to study or to personal observation, and its location also makes possible frequent lectures before the school by eminent public men, who, having interests in the city, in Washington, New York, or Baltimore, can, with slight inconvenience to themselves and great advantage to the students of the School, address the School upon financial and economic subjects in which they are specially informed. In this way the students of the School meet eminent officials in the service of the State, municipality, and of the nation, and are enabled to learn the present day conditions of public affairs.

The publications of the School comprise monographs on subjects for the investigation of which the School was founded. On several occasions the American Bankers' Association and other similar associations in various parts of the country have seen fit to commend the purpose and organization of the Wharton School, and to suggest that other universities establish such schools.

The Wharton School of Finance and Economy is at once a center for the study of political economy, and a college of practical affairs, offering courses suitable to those young men looking forward to a business career (whether in merchandising, banking, insurance, or transportation), to journalism, the public service, teaching economics and politics in our schools and colleges, or to the study and practice of the law, and in all these departments it has now eminent representatives and illustrations of the value of its curriculum.

¹ See chapter XVIII, on the School of American History and Institutions.

CHAPTER XIII.

THE BIOLOGICAL SCHOOL.

The growth or coming of the biological school represents the evolution of an idea.

Philadelphia, probably earlier than most of our American cities, evinced a pronounced tendency toward studies in the natural sciences. Botany especially received marked attention. Bartram's botanical garden was started as early as 1728. That of Marshall (a relative of Bartram), in Chester County, was established in 1773.

Dr. David Hosack was born in 1769. His botanical garden near New York was not started until 1801. His fondness for natural history was very decided, and manifested itself early in life. He received his collegiate training in Princeton and his medical education in Philadelphia. It is, therefore, quite probable that he was influenced in his determination to start a botanical garden by the success of the one which, under the care of Bartram, had already become so celebrated. It is evident that this early predilection for botany in and around Philadelphia must be accounted for. Bartram and Marshall were merely the most distinguished of a considerable number who were inclined to such studies.

Eastern Pennsylvania derived a large proportion of its early colonists from the Society of Friends. Their power was great from the date of their arrival, and it was constantly exerted in the direction of education and humanizing influences. We can not wonder that minds of more than ordinary activity among them were drawn to studies of nature. The amusements of the "world's people" were forbidden to the "Quaker" youth. Indeed, they were mildly discouraged from too close an association with others than the members of their own society. The serenity of mind so desired by the "Friend" was cultivated by the calm contemplation of growing plants and living animals. The open field and the deep forest, rather than the haunts of men, were the natural outlet for pent vitality. Possibly even in the bright colored flowers some compensation might have been found for the forbidden admiration of gaudy attire. Then, too, the influence of these early botanists and zoölogists among those outside their own religious circle could not fail to be felt, and most so by the better representatives of the early citizens of Philadelphia.

From what follows, it will probably appear that the University of Pennsylvania has been fortunate in having trustees who have from the first been favorable to the natural sciences; and that the repeated attempts and failures to establish these studies have been due to no fault of theirs, but to a lack of pecuniary support, which appears to be common to all young colonies or nations.¹

So far as now appears, Dr. Adam Kuhn, a pupil of Linnæus, was the first botanical professor in Philadelphia, or in the country, being appointed in the year 1788. There is, however, no record of any important work connected with his name. As early as the year 1800 Dr. Benjamin Smith Barton was teaching botany in Philadelphia, and numbered among his pupils in 1803-'04 at the University of Pennsylvania, William Darlington, who subsequently became known as one of the most learned and exact botanists of his day in this or in any country. Dr. Darlington says of his preceptor, "that he did more than any of his contemporaries in diffusing a taste for the natural sciences among the young men who then resorted to that school." He also published in 1803 "the first American elementary work on botany, at Philadelphia." It is clear, then, that the influence of Professor Barton was very considerable.

The minutes of a trustee meeting held April 7, 1812, show that "a letter was received from Dr. Barton requesting the use of one of the rooms in the University to deliver his lectures on natural history and botany in." The request could not be granted. In July, 1813, Dr. Barton resigned his professorship of materia medica, a position which does not appear to have been a bed of roses. He was succeeded by Dr. Chapman.

The following minute appears of a trustee meeting of November 7, 1815:

Whereas, the legislature of Pennsylvania by their act passed the 19th March, 1805, granted to the trustees of this institution out of the moneys due to the State the sum of three thousand dollars for the purpose of enabling them to establish a garden for the improvement of the Science of Botany, Resolved, that Mr. Rawle, Mr. Chew and Mr. Burd be a committee to consider and report the best method of carrying the said intention of the legislature into effect.

February 6, 1816, at a trustee meeting Mr. S. C. Rafinesque and Dr. William P. C. Barton offered themselves as candidates for the professorship of natural history and botany in the University.

At the same meeting, on the motion of Mr. Rawle, the following was submitted to the consideration of the board:

Resolved, That a faculty of physical science and rural economy be instituted, to consist at present of the following professorships: 1st, of Botany; 2d, of Zoölogy; 3d, of Geology and Mineralogy; 4th, Comparative Anatomy and the Veterinary Art.

¹Desirable as it might be to have a full statement of all the events, chronologically arranged, which prepared the way for the biological school, it is clearly impossible within the limits of this paper. It will, therefore, be understood that only the more important ones are alluded to.



THE SCHOOL OF BIOLOGY.

At the same time a committee was appointed to consider what accommodations the university could afford such faculty.

The trustees received March 19, 1816, "a letter from a Society of Gentlemen called the Cabinet of Sciences, relating to a botanical garden. It was referred to the committee on that subject. Mr. Binney and Mr. Gibson were added to the committee on botanical garden." On April 2, the committee was authorized to solicit subscriptions from the public toward the accomplishment of that end. Nothing having been accomplished by meeting with the Cabinet of Sciences, on April 16. the committee announced that they had published their application for aid in the public papers. The trustees at once resolved to create a faculty of natural sciences and rural economy. It is evident throughout that the governing board of the university was not only abreast of but ahead of the public.

By order of the board the moneys available for the botanical garden were to be put at interest, subject to future call.

October 4, 1818, the faculty of natural history was instituted and the following professorships created: First, botany and horticulture; second, natural history, including geology, zoölogy, and comparative anatomy; third, mineralogy and chemistry as applied to agriculture and the arts.

At the same time the professorships of natural history and botany were detached from the medical department and merged into the new faculty. Horticulture was soon removed from the duties of the botanical professor, and a separate chair of comparative anatomy was created.

To fill these places the following gentlemen were elected in December, 1816. William P. C. Barton, M. D., professor of botany; Charles Caldwell, M. D., professor of natural history, including geology and zoölogy; Thomas Cooper, M. D., professor of mineralogy and chemistry as applied to agriculture and arts; Thomas T. Hewson, M. D., professor of comparative anatomy.

A committee was also appointed to provide temporary accommodations for this new faculty.

Early in 1817, 42 acres of ground had been purchased for the botanical garden. The record shows that it was located in Penn Township, near the "Canal Road," and it was ordered that enough for the purposes of the garden should be "fenced off."

Meanwhile the question of rooms for the faculty was concerning the trustees. That malady appears to have reached a chronic state. There can be no doubt, however, that the authorities were straitened by lack of funds and that they were doing their utmost to provide the needed accommodations. So far as appears, no salary was attached to these chairs, except possibly what came directly from the student to the teacher, as we gather from a hint dropped by Prof. Barton in a letter to the trustees.

It is hardly to be wondered at, however, that the faculty was becom-

ing impatient. Accordingly, we discover that in 1818 Professors Caldwell and Hewson were both asking that means be taken to enable them to do their work. Such inquiries were referred to the committee on finance. Stringent economy had apparently become a necessity, and in 1819, after two years' ownership, the trustees were considering the propriety of selling the ground purchased for a botanical garden, and the professor of botany was "allowed the use of the yard south of the university, as the same is now inclosed, for the cultivation of plants there, at his own expense, during the pleasure of the board." In 1820 Prof. Barton's suggestion that the chair of botany be detached from the faculty of natural science and united to the medical faculty was reported against. Three months later Prof. Caldwell resigned his chair of natural history.

The only signs of life in the department of science were now the appointment of a committee to consider the propriety and the cost of erecting a greenhouse and the request from the janitor that he be allowed the use of Prof. Cooper's room for the winter, to preserve the plants "he had collected to adorn the grounds and to encourage the love of botany." The request was granted. The report of the committee on the greenhouse was laid on the table.

June 5, 1821, Prof. Cooper resigned the chair of mineralogy and chemistry in the faculty of natural science. On the first day of the ensuing year the question of filling the vacant chairs in this faculty appears to have become one of more than ordinary importance, for the trustees ordered the report of the committee having that in hand to be printed. A fortnight later it was resolved that it was expedient that the vacancies should be filled, and receiving nominations was made part of the order of business for the next meeting.

We may infer that instruction had been very irregular, as on February 4, 1822, Dr. Morton offered at a meeting of the trustees a resolution which declared that the professors of the faculty of natural science must deliver a course of at least ten lectures in each year on subjects connected with their departments, and that failure to do so would be regarded as abdicating the chair in which it occurs. Whereupon Prof. Barton writes to the board that, whilst he is aware the resolution was not intended for him, it is proper he should say he had lectured in the winters of 1816, 1817, 1818, 1819, 1820, 1821, and, further, that he had refused to receive the fees from the students. The botanical instruction in 1821 was discontinued because a class could not be made up. He was, however, resolved to continue in the line of his duty.

March 5, 1822, William Hyppolytus Keating was elected professor of mineralogy and chemistry, and Thomas Say professor of natural history, including geology. A year later the trustees allowed Prof. Keating to join Maj. Long's expedition, which was to explore the St. Peters River to its source. Prof. Barton, in 1825, is still anxious for improvements to his lecture room.

Prof. Keating's services seem to have been in demand, for the board in 1826 again excused him from lecturing and allowed him to visit the mines of Mexico. The excuse probably was readily granted in the absence of students to teach or money to pay a professor.

In all this one may recognize an earnest desire on the part of both professors and trustees to do their respective duties. The probability is there was no fault on either side. It was simply a lamentable lack of funds, which brought failure where success was deserved.

The crisis, however, was reached in March, 1827. It appears that no lectures had been given for several years by the professor of natural history, including geology, or by the professor of comparative anatomy, and that the professor of botany was then holding the professorship of *materia medica* in the newly started Jefferson Medical College. All this irregularity was to be inquired into by the trustees, and a committee was appointed to attend to the matter. There was no common basis for any amicable settlement, and the minutes show that early in 1828 the faculty of natural science was unanimously abolished, on the motion of Mr. Binney.

Now, however, it appears that the medical faculty, which would have no botany while Dr. Barton occupied the chair, had become suddenly solicitous about that science, and, as a result, the trustees reëstablished the chair of botany in 1829, placing it on the same footing as it was before the institution of the faculty of natural science, and Mr. Solomon W. Conrad was speedily chosen to fill it. The appointment was probably the best that could have been made. Mr. Conrad was, as stated by one of his contemporaries, an "amiable man" and an excellent botanist, and was probably the earliest to "attempt in the United States to group our plants in accordance with the natural method."

Efforts were made in 1830 to restore the chair of comparative anatomy, but, it appears, without success.

For a brief period the name of the distinguished Henry C. Rogers appears on the college catalogue in connection with the chair of geology, and George B. Wood, then one of the best known of American physicians and holding the chair of *materia medica* in the medical faculty, announced for a single year that besides his cabinet there was a conservatory from which are exhibited, in the fresh and growing state, the native and exotic medicinal plants.

In the catalogue for 1850-51, on the same page with the faculty of arts, is a list of five "professors not members of the faculty of arts." Among them Samuel S. Haldeman, A. M., is professor of natural history. Probably the country has produced few more learned men than he.

Charles B. Trego, who sustained a long and honored relation to the university, first appears as a "professor not a member of the faculty of arts" in connection with mineralogy and geology.

Joseph Leidy began his illustrious career in the University of Pennsylvania in 1853-54, and in the year following Professor Trego added paleontology to the duties of his chair in the new Department of Mines.

The Department of Mines, Arts, and Manufactures became in 1863-64 the College of Agriculture, Mines, Arts, and Mechanic Arts, and among the elective chances for the degree of B. S. we find specified two courses in physiology and natural history.

Thus far but little came of all the efforts to create a course in natural history. There is something almost pathetic in the reiterated attempts made by the trustees. Baffled in one direction they immediately tried in another; now endeavoring to enlist interest and coöperation under this name, again under that, but with disappointment as a uniform result. We can, however, see that the successful forces were gathering and that a favorable result was but a question of time. It is worth while, however, to collate all these failures, because they carry with them lessons of encouragement to other often disappointed institutions.

Few men of his time were more fully aware of the weak points in our system of medical education than Prof. George B. Wood. He was not only wise, but he was wealthy and generous. In the catalogue for 1865-66 the auxiliary faculty of medicine first appears. Each of the faculty of five received for a course of thirty-five lectures the sum of \$500.

As organized by Dr. Wood, it stood thus: Harrison Allen, M. D., professor of zoölogy and comparative anatomy; H. C. Wood, M. D., professor of botany; F. V. Hayden, M. D., professor of geology and mineralogy; Henry Hartshorne, M. D., professor of hygiene; John S. Reese, M. D., professor of medical jurisdiction and toxicology.

The founder not only cared for this faculty during his life, but provided for it in his last will, where he expresses himself thus:

It is my desire that said faculty and professorships shall be permanently established: Therefore, for that purpose I give and bequeath unto the trustees of the University of Pennsylvania Fifty Thousand Dollars, in trust, to be kept safely invested in ground rents, first mortgages, or in the loans of the City of Philadelphia, or the State of Pennsylvania, or of the United States.

Dr. Wood recognized that the salary was a meager one and specially specified that "such salaries will be in addition to any fees that may be paid by the pupils."

The work done and the spirit awakened by this faculty led to a hope for still better things. It at least nurtured the belief that Philadelphia might some day have a properly equipped school of natural science.

Lengthening the medical course caused conflict between it and the auxiliary course as to hours available for instruction. To obviate this and also to introduce the natural sciences into the work of the college a course preparatory to medicine was announced in the catalogue for 1882-83. Students contemplating medical study were allowed to enter



PRIVATE ROOM OF LATE PROFESSOR LEIDY—BIOLOGICAL HALL.

this course at the end of the sophomore year, and by omission of certain branches have time to give special attention to chemistry, physics, physiology, zoölogy, and botany without destroying their chance for a degree. There was but little hope for a course of this character at that time. The old question of conflicting hours alone presented insuperable difficulties with the limited teaching force available.

About this time Dr. Horace Jayne, a graduate of both the literary and medical departments of the University of Pennsylvania, went abroad for study and devoted several years to examination of the most celebrated laboratories of the old world. He had fully measured the need in Philadelphia of a well-equipped biological school, separate and distinct from any other, and all other departments, or, if in association with any other, then on such terms that the independence of its instruction would not be endangered. He gave himself to the task of developing the school and largely aided it financially himself, and Provost Pepper joined heartily in the movement, subscribing himself \$5,000. The contributions made by Dr. Jayne, personally, at that time and subsequently, have not been less than \$50,000. Another factor must be mentioned here. In the latter part of 1883 Prof. Harrison Allen called attention to our shortcomings in the matter of education of women by an admirable article in *The American* (then published in Philadelphia). It came upon the citizens with the force of a surprise. The Philadelphia Academy of Natural Sciences, in its long and admirable career, which happily still continues, was supposed to be all-sufficient for scientific instruction. Its function the public appears to have misunderstood. Its services to science had been and are vast, but its legitimate work had been original investigation or, at most, training the few specially endowed youth who were destined to become naturalists, even in lack of systematic training. The general scientific instruction in classes and by supervised laboratory work remained for the biological school to do. Furthermore, under the inspiration of the occasion it was declared by the public and assented to by the trustees that this instruction should be for both sexes alike. It was to raise a perfected system of education, different from, but equal in value to, the ordinary college course; not in opposition to the latter, but in sympathy with and parallel to it. It was to allow youth of different predilections a choice between two equally valuable lines of mental training and so to educate by one method those who declined to be educated by another.

The new school opened December 4, 1884, with an address by Prof. Harrison Allen, after Provost Pepper in his usual clear manner had defined the purpose of the meeting. Teaching began at once.

The faculty and school as at first organized.

William Pepper, M. D., LL. D., provost of the University and ex officio president of the faculty; Joseph Liedy, M. D., LL. D., professor of zoölogy and director of the school; Joseph T. Rothrock, M. D., B. S., professor of botany; Horace Jayne, M. D., B. A., professor of vertebrate morph-

ology; Benjamin Sharp, M. D., PH. D., professor of invertebrate morphology; M. Archer Randolph, M. D., instructor in physiology.

The building as originally constructed was of brick, two stories high, 82 feet long by 47 wide. The lower floor, besides two laboratories, each 30 feet long by 22.5 wide, has a lecture room and museum of about the same size. A greenhouse is connected with one of the laboratories and furnishes abundant material for class work. On the second floor are the rooms of the professors, several special laboratories, the working library, and the herbarium, besides which the halls contain cases now used for the nucleus of a museum of economic botany. In the cellar are rooms for storing and assorting materials and a well-lighted, comfortable assembly room for the students, containing also closets for their working clothing, etc."

It was soon discovered that more space was required, and in two or three years from the date of opening, a third story, imperatively demanded, was added. This contained a laboratory, 80 feet long by 22.5 wide, and seven smaller rooms devoted to special purposes. Every attention was given to secure the best and most light.

From the outset it was determined that each student should have a complete working outfit of his own, for which he should make a deposit in money, receipt, and be held responsible. This rule has been carried out, so that a compound and a simple microscope and a full assortment of chemicals, test tubes, etc., is in the private closet of every biological student. It may be added that there was a double purpose in this: First, to secure the largest advantage to the student while at work, to encourage investigation out of college hours, and, second, to teach him the care of instruments by making him responsible for them. It may be claimed that the plan has accomplished all that was intended. It is carried so far that nothing will be received from the student at the end of the term, until it is inspected and found to be clean and in satisfactory condition. If it is not, a sum sufficient to make good the consequences of neglect or rough usage is deducted from his deposit. In no case is a bad compound microscope furnished. The powers range from 50 to 1,000 diameters, and sharp definition of the optical parts of each microscope is carefully considered. The fact that the yearly damage to the instruments is small is good evidence of the care taken by the student and also of the skill acquired in using them.

The botanical garden, so long anticipated, has been at length commenced. A considerable area has been set apart for it. A limited fund, derived from the estate of the late Dr. George B. Wood, is available for its support, and it already contains a considerable number of rare and desirable plants. It is confidently hoped that the coming year will produce noteworthy additions to the plants already growing there.

The biological school was at first intended to furnish suitable preparation for those contemplating the study of medicine. This was simply a continuation of the idea which a few years earlier had found ex-

pression in a like course in the Towne scientific school of the University, which course had been abolished when the biological school was opened. It was also hoped that it might induce a considerable number who did not desire a regular collegiate education to add something to their training before they commenced the avocations which they had selected. It is fair to say that these reasonable expectations have been fulfilled.

Original investigations are now being made by eight advanced students which promise important economic and scientific results. There is abundant evidence that this class of students will increase year by year and that the biological school of the University of Pennsylvania will add its share to the knowledge of the world.

Without endowment and with no settled means of support, trusting wholly upon the public demand for biological instruction to furnish the means of conducting the school, it was found at first impracticable to insist for entrance to the school on an examination as high even as that required for admission to the freshmen year of our ordinary American college. Neither could we hope to retain the majority of the students for more than two years. Hence no degree was or could be given under the circumstances. The student who passed his final examination at the end of his two-year course was simply awarded a certificate.

In 1892 a further advance was made when, on recommendation of the medical faculty, the board of trustees voted that students who have taken in their college course instruction in biology and kindred subjects equivalent to that given in the ten-year course preparatory to medicine, and have received the bachelor's degree, shall be admitted to the second year of the new required four-year course in medicine.

MAMMALIAN ANATOMY.—PROF. HORACE JAYNE.

This course teaches the exact anatomy of one typical mammal and the modes of dissection. The skeleton is the first part studied, that of the cat being made the basis, though when typical structures are not well shown by it recourse is had to other species.

Each student is supplied with a complete, disarticulated skeleton of the cat and has access to the large collection of articulated skeletons and special preparations illustrating osteology.

From the skeleton of the cat the student turns to the muscles, dissecting these and subsequently the viscera, arteries, veins, and nerves. Consideration of the central nervous system is left to the last. Explanatory lectures on preparation and preservation of anatomical material, precautions insuring cleanliness and accuracy, and the general details of dissection are given before work is begun. Special explanation precedes all special study.

Lectures, laboratory work, examinations, and frequent "quizzes"

combine to impress these facts. The frequency of practical examinations discourages excessive reading and obliges the student to trust more to observation.

To this course six hours each week are given throughout the year; though in the second term six hours additional may be elected.

The course in vertebrate morphology is open to students of the second year who have completed the work in general biology, invertebrate morphology, and mammalian anatomy. It embraces the careful study of five or six types, beginning in each case with external characteristics and their importance as a means of classification. This is followed by exercises in classification with the use of keys and text, much as analytical botany is studied. When the student has a fair idea of the type's place in nature, the anatomical work proper begins. Particular attention is of course paid to the comparative side of the subject and to the influence of modes of life upon structure. In this way the fish, frog, terrapin, and bird are studied. Ample material is furnished and good diagrams and models are at hand. The course requires six hours each week throughout the second term.

The course in comparative osteology is one of the most satisfactory, because of the abundance of illustrative materials in the museum. The collection is rich in complete articulated skeletons, in parts mounted to show special characters, and in series of skulls mounted with the constituent bone separated, but in relative position. There is in addition a great accumulation of disarticulated skeletons and separate bones. As the student is supposed to be familiar with anatomy and zoölogy, the actual instruction is given by informal talks during the progress of the work.

Graduate students may have advanced work in vertebrate morphology. This is adapted to the special needs of the individual and depends upon his own preparation and partly also on the line of study in which the professor may himself be engaged at the time.

ANATOMY AND PHYSIOLOGY OF PLANTS.—PROF. WILLIAM POWELL WILSON.

The botany is wholly from plants and by experimental methods. Books are only used for reference. The student handles and studies the thing itself. By the use of simple and compound microscopes provided for each pupil, the lower as well as the higher forms of plant life are subjected to careful examination and study.

The different parts of the plant are considered at one and the same time in the first year from three points of view: that of form (morphology), structure (anatomy), and use (function).

In the second year the student takes a practical course in plant anatomy. This opens with a most careful study of the living plant cell under varying conditions. The different substances and tissues are considered in detail. The systems of tissues in the root, stem, leaves, flowers, and fruit (together with some attention to their functions) constitute the first half of this year's work.



MUSEUM—BIOLOGICAL HALL.



If the student wishes to continue in botany during the third year he may pursue a course of laboratory work in plant physiology. The method followed is by dividing the subject before the class into parts and portioning these out to the different members. In this way the subject of germination, which is now before the class, has been separated into—

(a) The biology of the seed, which invites a careful study of all the parts considered in relation to each other and also to all the different external conditions which may arise in its development.

(b) The changes in form of the parts of the seed during germination, with reasons for the same.

(c) The chemical changes in the seed during germination, with the transfer and appropriation of the food materials when and where growth is taking place.

(d) The absorption of water by the seed.

(e) The absorption and excretion of gases by the seed, and measurement of the same.

(f) The temperature of the seed during germination considered in relation to normal and intramolecular respiration, etc.

Each student considers one of these topics, making such experiments with living seeds as to demonstrate the points under consideration. After having worked the whole subject over he presents his conclusions, illustrated with his experiments, to the class. The professor in charge comments on both the results and the method of presenting them, adding any new material which may have been neglected by the student.

In this way much ground can be gone over with satisfaction to all concerned. The other subjects are studied in the same manner.

SYSTEMATIC AND ECONOMIC BOTANY,—PROF. J. T. ROTHROCK.

This begins in the latter half of the first year, and, as the work is confined to the flowering and the higher (so-called) flowerless plants, Gray's Manual of Botany is used in connection with the abundant material furnished for analytical work.

The student is made aware that naming a plant botanically is only a means to an end, the real object being, first, to enable him to avail himself of the literature connected with the plant and to designate it by such a name as will leave no doubt as to what plant he is speaking or writing of, and, in the second place, to lead him to a recognition of the plant's place in the vegetable kingdom, as a deduction from an ascertained structure. It is worthy of note here that there is a faulty tendency in many places to consider botany almost wholly from the development of the individual, leaving the evolution of species and their relation to each other in the background. This is to be deprecated, if for no other reason than because in our country the most important botanical work to be done is, first of all, to describe and name what plants we have, and to do this a generation at least of trained syste-

matists will yet be required. To neglect systematic botany at this juncture for the study of individual plants wholly would be like an attempt to study philology before the formation of a lexicon.

The first work of the student in this department is to study the species, as an aggregate of individuals; second, to consider the genus as an aggregate of related species; third, to study genera as constituting orders, etc. In this way an idea of the natural grouping of plants is obtained, together with some conception of the relative value of the different points of structure. Exact written descriptions of plants are also required, not only as a test of what the student actually has seen, but as an incentive to still closer observation. Six hours each week are given to the work in this department.

In the latter half of the second year the student may decide between the (so-called) flowerless plants and economic botany.

The methods of study of the flowerless plants are much the same as in the work of the first year, making allowance of course for differences inherent in the subjects and, further, for the lack of suitable textbooks in a large portion of the field covered.

Economic botany admits of division according to the special object the student may have in view. If he contemplates medical study, it is of course obvious that the greater portion of his limited time should be devoted to our native remedial plants; if, on the other hand, he inclines to a mechanical career, the structure of our different species of wood must more nearly concern him; or if he has a mercantile life in view, the fiber and the starch-producing plants would naturally interest him most.

It is of course clear that no such course of botanical study as could be concluded in two years would be other than elementary in its character. A third or even a fourth year could be taken with advantage in the biological school. Whilst the institution is amply equipped for advanced botanical teaching in most directions, it still lacks important facilities for the study of the life-history of the lower plants. This demand of course will soon be met, for it is inconceivable that a field of such vast practical importance to the agriculturist, the fruit-grower, and the horticulturist should remain unnoticed.

HISTOLOGY.—PROF. JOHN RYDER.

It is sought in this branch to familiarize the undergraduate student with the great principles of the science of histology. The subject is treated, it is believed, in a manner different from that pursued in most schools. Beginning with the formal changes and the apparent cycle of causes at work in producing many of them in the simplest living forms, the student is in a measure prepared to understand the formal changes in the various types of animal cells.

The work is thus rendered, it is thought, more interesting to the thoughtful student, since he is brought into contact with a much wider

range of data than would otherwise be possible. If, for example, in addition to the morphological facts, he is given some general hints and illustrations of the physical and physiological facts involved, he is ultimately prepared to appreciate far more keenly the value of histological work and its transcendent importance in relation to physiology at large.

EMBRYOLOGY.—PROF. JOHN RYDER.

The embryological work is confined to the second term and is made comparative only so far as is consistent with the limited time at the disposal of the student. While it would be desirable to render the course essentially comparative, experience has shown that it is better to confine the undergraduate student in his work mainly to a single type, in order that the training so gained may serve as a guide to work of a more general character.

The development of the chick has been followed hitherto as offering the best and most accessible form for a study of the early history of the vertebrate body. This is done for the reason that the development of the vertebrate is of the most direct and important interest to our students, many of whom afterwards enter upon the study of medical science.

While much the same plan is followed as in the preceding histological course, the method involves the use of sections, surface views of whole embryos, etc., to illustrate the details. Practical laboratory work extends over six hours each week, with lectures illustrating each phase of the subject in hand by diagrams, blackboard drawings, preparations, etc. Special stress is laid upon the sequence and significance of the steps of development, so that the student is here again, as in the histological course, brought into a practical relation with the facts and their bearings in a general theory of development.

CHEMISTRY.—PROF. EDGAR F. SMITH.

The chemical instruction given to the biological student during the first year of his course consists in the execution of a rather long series of experiments upon the nonmetals and the metals, with frequent conversational lectures and "quizzes." Much time is devoted to the equation writing of problems, based upon the more important experiments and the principles involved in them.

In the second year qualitative analysis is pursued. The reactions of bases and acids are carefully studied, after which "unknown solutions and solids" are worked upon until the student has acquired such proficiency that he can carry on quantitative work with satisfaction to his instructor and with profit to himself. Recitations are regularly held on the work of the year.

The course of lectures on organic chemistry is also open to the second-year biological student, while practical study in this branch is afforded to all who are sufficiently advanced to profit thereby.

In this class the attention of the student is first directed to the construction and use of the microscope. Thereafter the action and value of staining agents and of reagents is practically studied, and methods of examination and permanent preservation of objects are engaged in. By lectures and practical laboratory work a knowledge is gained of the comparative structure and functions of vegetable and mineral cells.

The student is then in a position to trace the life cycle of selected vegetable and animal types that can be utilized later in illustrating the fundamental features of the organic world. In the lecture room and the laboratory each type is exhaustively treated, and careful drawings are made by members of the class of the organs and tissues of each. While this work is in progress students engage individually in preparing and embedding objects in frozen gum, in celloidin, and in paraffin, for future sectioning and examination.

The concluding lectures of the course deal with organic evolution, as illustrated in the types studied, as well as related forms; the significance and effect of symbiosis, saprophytism, parasitism, and general environmental action alike in the vegetable and animal kingdoms.

Frequent tutorial revisals are given, and sectional meetings are held for such special work as the measuring of microscopic objects, the photographing of these for accurate illustration purposes, etc.

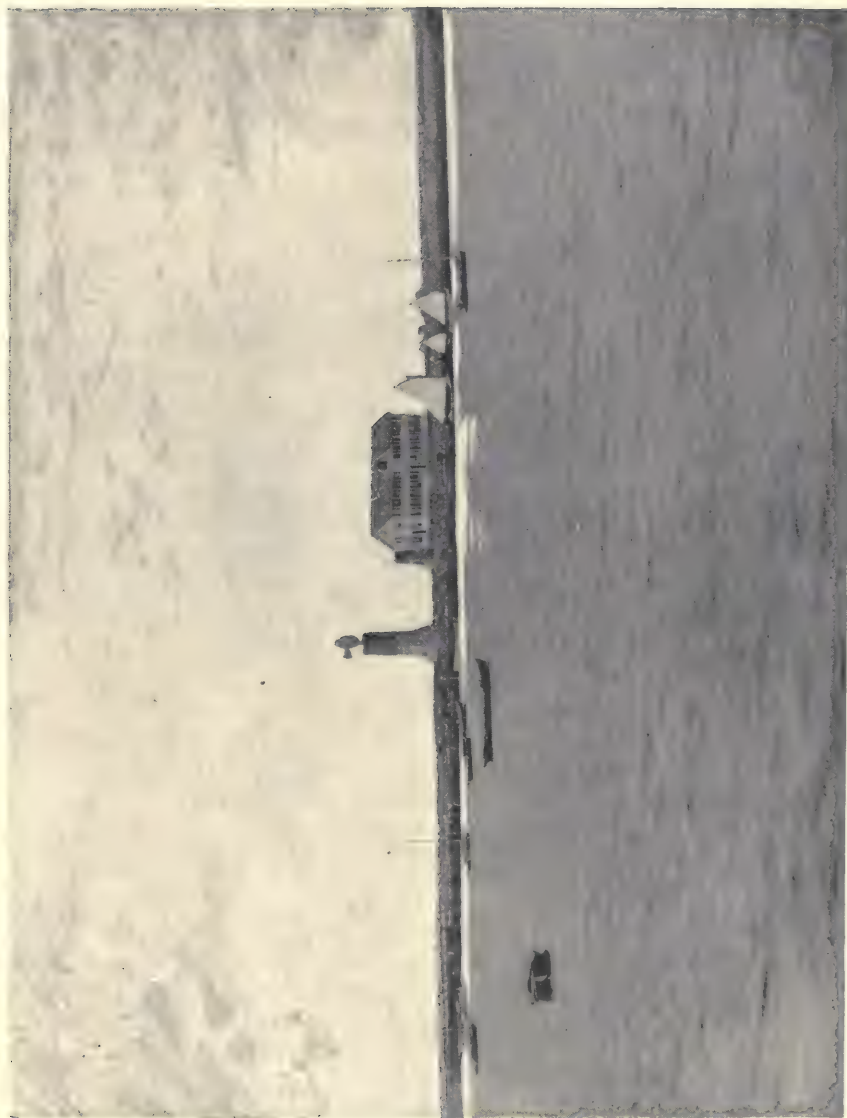
The Laboratory of Marine Biology at Sea Isle City, N. J., was founded in 1891. It gives opportunity for the study of living forms, and is open during the summer months. Its work is directed by the faculty of the Biological School. The laboratory is an application and illustration of Franklin's ideas of "observation and reasoning in natural history," referred to in his Proposals for the Education of Youth in Pennsylvania. The school is under the general direction of Milton J. Greenman, M. D.

The establishment of the Laboratory of Marine Biology upon the New Jersey coast is the outcome of a careful consideration of the methods by which the University of Pennsylvania could best meet its own needs and the requirements of students of biology at large.

Since the introduction of the study of Natural History into the public and private schools and colleges, it is more necessary than ever before that ample opportunities for the study of living things shall be offered to teachers at a time when they are not engaged in their professional duties.

It has been recognized that to the winter work in the city laboratory there should be added courses of instruction given during the summer, at a time when living forms are at their best, when not only their structure may be studied but also their modes of life and development may be followed from day to day. To meet these requirements the Laboratory of Marine Biology has been established.

The selection of a suitable place for this work was made by the late Prof. Joseph Leidy. Sea Isle City, N. J., was selected on account of



BIOLOGICAL MARINE LABORATORY.

the richness of the surrounding fauna and flora, and the accessibility of the place to several important cities. The laboratory is thus placed within easy reach of a large number of students of Natural History, and affords investigators who desire to study the more southern types of life, a desirable place to carry on their research work.

The laboratory grounds comprising five acres and the laboratory building situated at Sea Isle City, N. J., on Ludlam Bay, were given to the university by Mr. Charles K. Landis, of Vineland, N. J., and the equipments were secured by generous subscriptions from him and other friends of education.

The laboratory building is a large two-story structure, supplied with twenty-five aquaria and running sea water; with tables and other laboratory furniture.

The laboratory accommodates sixteen investigators and twenty students. Besides the laboratory building the station is furnished with suitable engines for pumping purposes; storage tanks for fresh and salt water; collecting apparatus, such as seines, weirs, dredges, and trawls. Three sail-boats, one large barge, and six row-boats are owned by the laboratory and used for collecting in the bays and thoroughfares. A private dock has been built for the use of laboratory boats.

The laboratory building was erected in May, 1891, and the entire summer season was spent in getting apparatus into place and perfecting the various appointments of the station. The scientific work was therefore necessarily limited. That which was done consisted of some experiments in practical oyster culture conducted by Prof. John A. Ryder, of the University of Pennsylvania; a collection of the fishes of the locality was made by Prof. E. D. Cope, of the University of Pennsylvania, and a large collection of invertebrates was made by Prof. Hall, of Haverford College.

In July, 1892, the second season in the existence of the Marine Laboratory, the summer school was opened with an attendance of fifteen students. Five investigators were also at work at the laboratory in August, 1892.

The Laboratory of Marine Biology is a part of the School of Biology of the University of Pennsylvania, and the teaching at the summer school is done by the faculty of biology of the University, aided by such persons as this faculty may select.

The laboratory and aquarium are under the management of one of the members of the faculty who is chosen to take charge of the business of the summer school and the general management of the station. The present teaching corps consists of the following persons: Horace Jayne, M. D., Professor of Vertebrate Morphology, Dean of the Faculty; John A. Ryder, PH. D., Professor of Comparative Embryology; John M. Macfarlane, SC. D., F. R. S. E., lately Professor of Botany in the Royal Veterinary College of Edinburgh, Scotland; J. Percy Moore, Frank H. Moore, Philip Calvert, assistants in Zoölogy; Jesse M. Greenman,

assistant in Botany; Milton J. Greenman, PH. B., M. D., in charge of the Marine Laboratory and Aquarium. This laboratory is the sixth in the history of American marine laboratories to be established. The Anderson Laboratory, established by the elder Agassiz, at Penikese, was the first marine laboratory established in America. Following this came Prof. Baird's laboratory at Noank, Conn., afterwards at Woods Holl, Mass., then Prof. Alexander Agassiz's laboratory at Newport, R. I. Later, the Chesapeake Laboratory was organized by Prof. W. K. Brooks, under the auspices of Johns Hopkins University. Prof. Brooks also established a branch laboratory temporarily at Beaufort and later at Nassau, N. P., West Indies. It was at Prof. Brooks' Nassau laboratory that the expedition sent out by the Biological School of the University of Pennsylvania made extensive collections of biological specimens during the summer of 1887.

Following Prof. Brooks' most successful efforts in the South came the Boston Marine Laboratory, at Woods Holl, Mass., under the directorship of Prof. C. O. Whitman. Probably no laboratory on the American coast has been so successful as the Boston Marine Laboratory. The natural advantages of the place and the enthusiastic support which it has received from the beginning have made it what it is. Next in the chronological order stands the Laboratory of Marine Biology of the University of Pennsylvania, while during the past year the Hopkins Marine Laboratory of the Leland Stanford University has been established on the Pacific coast.

At the laboratory during the first session (1892) classes in zoölogy and botany have been conducted and the lectures have been richly illustrated by supplies of animals and plants drawn from the surrounding country.

Frequent excursions into the fields and on the bays and rivers have been made by the students, who have thereby been brought into intimate contact with living objects in their natural haunts. Collections of laboratory materials have been made by a number of teachers who are working at the laboratory, and numerous lectures have been delivered by members of the teaching corps. The experiments in practical oyster culture, which proved so successful last year, have been carried on this season by the U. S. Fish Commission, under the direction of Prof. John A. Ryder. It is hoped that this work will be of practical benefit to the oystermen and aid in reëstablishing the oyster beds of the New Jersey coast.



THE UNIVERSITY HOSPITAL.

CHAPTER XIV.

THE UNIVERSITY HOSPITAL.

As far as appears, the first words touching this hospital were uttered upon the platform of the Academy of Music at the medical commencement of the University in the spring of 1871.

On that occasion Dr. H. C. Wood, a talented and ambitious physician of the class of 1862, fell into converse with a friend of like characteristics, Dr. William F. Norris, of the class of 1861, and they, with a third kindred spirit, Dr. William Pepper, of the class of 1864.

That which they spoke of, when once it was spoken of, quickly became known and of interest to all the friends of the Medical School.

The University was about to be removed from Ninth, near Chestnut street, 2 miles westward, over the Schuylkill River. Its Medical School could not follow it, unless there were adjacent to it a hospital, and, save that of the Philadelphia Almshouse, there would be none.

To leave the vicinity of the old Pennsylvania Hospital, the most ancient in America and for fifty years the best appointed in the world, by whose bedsides students of the University had been taught for so many years, was not to be thought of, unless a fitting substitute could be obtained.

How to do this was the thought of the three young doctors on this commencement day of 1871. To do this became their resolve. There was good reason for this resolution.

The new position of the University was to be in a beautiful suburb of the growing city. Its site would be commanding, salubrious, and ample for future wants. Near it rows of houses were being built suitable for students' dwellings. To keep all departments of the University near each other was more than a pleasing thought; it was likely to be an economical and useful measure.

The first action taken under these views was the assembling of the medical alumni in a meeting on June 12, 1871, under the chairmanship of the Hon. Morton McMichael.

This gentleman was editor of the oldest newspaper in America—a leader of political thought, though not an office-holder—an accomplished orator, with special facility for after-dinner speaking, a most genial and popular man, of whom the fondness of his fellows has preserved the remembrance by a bronze statue in Fairmount Park.

His indorsement was a fortunate initiation of the movement. The meeting determined that the importance of creating the hospital should be pressed upon the medical faculty and presented to the Board of Trustees of the University.

There then sat at this board two gentlemen who had been mayors of Philadelphia before the act had been passed which consolidated its various districts into one city, the venerable gentleman who was the father of that act and the foremost real estate lawyer of the city, the Secretary of the Navy of the United States, a gentleman who came to occupy a seat in the Supreme Court of the United States, another who became minister of the United States at the Court of St. James, and other gentlemen of like prominence in their avocations and professions.

The chairman of the medical committee was Dr. George B. Wood, who, as student, professor, and trustee, from youth to old age, had spent, as a physician, his life in the service of the University.

Such a body, so advised as to its medical interests, could hardly fail to approve of the projected hospital. It promptly agreed to appropriate ground for it. The faculty quickly caught the feeling of the hour and appointed a committee to coöperate with one from the alumni. The joint committee prepared an appeal to the public, which was signed by a number of influential citizens. A meeting of the signers of this appeal selected a hospital finance committee, or commission, to direct subsequent movements.

William Pepper, M. D., was made chairman of the commission, Saunders Lewis was elected treasurer, and the project was thus fairly on foot.

The committee placed before itself no less a task than the collection of \$700,000. Without support from church influence, with no expectation of great gifts under the promptings of religious zeal, sustained by no rich class or profession, relying simply on the statement of its needs and of its usefulness, trusting to University feeling, but trusting more to the disposition of the charitable, it ventured upon this large work.

The epoch of the work favored its success.

Hearts, stimulated by the efforts and softened by the sufferings of the war of the rebellion, were responsive to the calls of charity. The financial panic of 1873 had not yet come, following the war, and purses were yet heavy with its profits. The enormous increase, however, in the wealth of the United States during the past twenty years had not then been reflected in the great fortunes of the present time. Great donations, in the modern sense, were therefore not to be expected from the charitable, and but one such was made, viz, \$50,000, by Isaiah V. Williamson.

This name recalls a remarkable man, one who then was by sagacious investments and severest (though not parsimonious) economy, amassing an enormous fortune based on the successes of early life. He was unknown as a giver of money, famous as a saver of it. His wealth, however, invited attack in the interest of the hospital. It was determined

to attempt one at whatever risk of repulse. Dr. Pepper and one other member of the hospital commission obtained an interview with him in his office, one of the darkest little rooms in one of the narrowest business streets of Philadelphia.

For twenty minutes or more he listened in silence to the eloquence the occasion drew forth, briefly asked two pertinent questions, silently listened again for a few moments to the replies, said he would think the matter over, and closed the interview. Without further solicitation he announced his decision in a few weeks, as the result of his own thinking.

Whether something said to him in this short meeting at his office wrought a change in his nature, or whether it caught the moment his nature was of itself beginning to stir towards benevolence, or whether he had already become a generous giver without the knowledge of his friends, can not now be known. Certain it is that soon thereafter he began a series of great public benefactions, and that henceforth his name was associated with constant liberality and his little office became the resort of those who sought aid for others.

Before his death this modest gentleman, who moved about so unostentatiously as hardly to be observed, bestowed \$3,000,000 to found a school for training mechanics, and was supposed to have devoted more to charity than had been done by any other private man while in life. The University received \$100,000 from him by gift and \$100,000 by will. Of these sums half fell to the hospital; and any history of it would be incomplete in which he was not remembered.

The progress of the work was aided by making evident the need for another hospital in Philadelphia,¹ by accepting subscriptions payable in four yearly installments, and by agreeing that any donor might nominate a patient to a bed for each \$5,000 given by him.

As attention was increasingly fixed upon the enterprise, it became evident that there was a pressing want for such a hospital throughout Pennsylvania. And early in 1872 it was determined to ask aid from the legislature, which was then in session.

The application for this was based upon the reasons given in the original appeal, upon the need for the hospital, and the duty of the State to care for its indigent sick and wounded.

Within thirty years preceding the appeal the population of the State had doubled, without a proportionate increase of hospitals, although the growth was chiefly of those engaged in the dangerous occupations; in the cities, of artisans and manufacturers, and in the coal and iron regions, of the mining classes.

From 1840 to 1871, for example, the population of Philadelphia grew from 250,000 to 700,000, her manufacturing capital from \$11,587,000 to \$225,000,000, and her free-hospital beds from 600 to only 1,100; while the tons of coal mined in the State increased from 700,000 to 22,500,000, with but a trifling addition to hospital beds in the mining regions.

¹ New York City, with 1,000,000 people, had 6,325 free beds, and Philadelphia, with nearly three-fourths of the population, only 1,100.

In the same period also almost the entire railroad system of the State had been created, and a daily tribute of accidents was paid for public convenience and accommodation.

The system, for the most part, was controlled in Philadelphia and centered there; and the position of the University at the focal point seemed the fitting location to care for the victims of these accidents. The University was in the highest sense a State organization. From its infancy the governor of Pennsylvania had filled the office of president of Board of Trustees, and it has always been free from private, local, or sectarian bias. Convinced by these and like considerations, the legislature determined that good morals and public policy forbade the State to be benefited by taxes levied on mines, railways, and factories, and to relegate the care of their victims to private charity, alone and unaided.

By an act approved April 3, 1872, the State granted to the University of Pennsylvania the sum of \$100,000 upon condition that it should raise the sum of \$250,000 in addition thereto; the entire appropriation to be expended in the erection of a general hospital in connection with said institution, in which at least two hundred free beds for persons injured should be forever maintained.

The acceptance of this ordinance bound the University to receive injured persons whenever presented to the hospital in number not exceeding two hundred.

It has so far fulfilled this obligation as never to have turned away a recent accident case, and has constantly and strenuously striven that the intent of the legislature shall be fulfilled in the erection of a hospital of two hundred free beds fully equipped and endowed.

The sum of \$250,000 having been raised, the State accepted this as fulfilling the statute and paid \$100,000 on November 16, 1872.

Reflection showed the immediate site of the University to be wanting in room to amply furnish with space, air, and sunshine a general State hospital of two hundred beds, having a capacity of growth to five hundred, as need might demand.

So forcibly were the benefits of such a hospital to the city urged by the chairman of the Commission that the city of Philadelphia, by ordinance passed unanimously by both chambers of councils and approved May 18, 1872, granted to the University $5\frac{1}{2}$ acres adjoining its site, in trust, to erect a hospital thereon in which there should be not less than fifty free beds for the indigent sick, a condition which the University has been glad to undertake and to fulfill.

This, then, had been accomplished—a spacious site and \$350,000 for building and endowment. This was much, but clearly not enough, for the building alone would absorb over \$200,000. Manifestly, therefore, the effort ought to be carried further on towards perfection. To this end the judges of the supreme court and of the city courts, and leading citizens of the State and city, petitioned the legislature to grant a second \$100,000 provisionally upon \$100,000 being otherwise given.

An act to this effect was passed and approved April 9, 1873.

It was now thought safe to begin construction. By the authority of the trustees of the University, Dr. William Pepper, Dr. R. E. Rogers, J. Vaughan Merrick, John Welsh, Saunders Lewis, and William Sellers were appointed a building committee. Dr. Pepper was made its chairman, and T. W. Richards its architect, and ground was broken in May.

The plan comprised a central building, 88 feet wide and 130 feet deep, holding a large and small clinical amphitheater, kitchen, offices, rooms for storage, for reception of patients, for servants, for officers, for directors' meetings, for general administration, and twelve chambers for resident physicians and private paying patients. It was planned to connect this building by a spacious and handsome corridor with pavilions, each containing six wards, having proper ward kitchens, nurses chambers, linen and splint rooms, bathrooms, and closets. Three of these pavilions, on either side of the central building, the whole having a frontage of 680 feet and capacity for 720 beds, was the completed hospital as it had by this time formed itself in the idea of its projectors. The structure was designed to be three stories in height, in University gothic, harmonizing with the surrounding departments of the institution.

The means in hand permitted the construction of no more than the central building and west wing, thus providing for 140 beds.

Subscriptions continued to be solicited while the building went up. Before it was finished enough had been raised to secure the second \$100,000 from the State.

The result achieved summed up thus: Donated by the city of Philadelphia, a site of $5\frac{1}{2}$ acres; appropriated by the State of Pennsylvania, \$200,000; private donations in sums of \$5,000 or multiples thereof, \$260,000; private donations in sums smaller than \$5,000, \$80,431; donations for a medical alumni ward, \$11,560; a total of \$552,042.

When completed, the hospital was inaugurated by ceremonies in which the governor of the State took part. During his address two tablets were placed on the walls bearing the following inscriptions:

Inaugurated

June 4, 1874,

by

His Excellency John F. Hartranft,
Governor of Pennsylvania.

This Hospital

was erected

through the liberality of the

State of Pennsylvania,

the

City of Philadelphia,

and

Many citizens.

A prayer of dedication followed this address.

Hon. William A. Wallace, late United States Senator from Pennsylvania, then delivered the inaugural address, replete with information and beautiful thought.

The hospital was opened for patients July 15, 1874.

Nothing about its history is quite so remarkable as the bold idea that conceived it, and the energy and skill which made the idea a reality. In a good cause enthusiasm avails much. In the cause of the hospital of the University of Pennsylvania, the enthusiasm of its young founders prevailed upon men of all parties and creeds, upon a famous institution of learning, upon a great municipality and a greater State, to place their meed of thought and wealth and wisdom into the hand of charity—guided by knowledge and science toward the common weal.

It detracts not from their accomplishment that personal aspirations lent force to their efforts. That places of profit and distinction have by them been won in the University and the world lessens not the good they have effected, diminishes naught of the comfort and happiness that is flowing to mankind through the channels they have formed.

The organization of the government of the hospital was complex.

The ownership of its property and funds rested in the trustees of the University, by whom the managers of the hospital were to be elected from their own number, and from nominees of subordinate bodies. The subordinate bodies were the board of contributors, chosen by donors of \$25 or over, the medical faculty, and the medical alumni of the University.

This form of organization was decided upon as representing all interests, the ownership of the property, those whose money had formed it, and those whose knowledge was to render it useful.

The Board of Managers was composed of five trustees, seven of the medical faculty, and three each of the contributors and medical alumni.

Its first meeting was held at the call of the Secretary of the Trustees of the University, on February 5, 1874.

Dr. George B. Wood was chosen President, Dr. Alfred Stillé Secretary, and Saunders Lewis, Treasurer. The next meeting elected Eli K. Price Vice-President.

The first of these gentlemen, at the age of 60, had resigned the chair of the theory and practice of medicine, and retired from active life, having, by his writing and teaching, made himself the leader of medical art and science in America. The preparation of the *Pharmacopœia* of the United States for many years rested chiefly upon him. His *United States Dispensatory* (of which Dr. Bache was joint author, and of which over 225,000 copies have been sold) was a work so highly valued that during the rebellion it was declared contraband of war, so beneficial did the United States deem its use to the armies of its enemies. Dr. Stillé, in 1874, was filling the chair of the theory and practice of medicine. Mr. Lewis was an influential and wealthy man of business,

whose family had honored the old Pennsylvania Hospital by holding its treasurership since 1780. Mr. Price, with one exception, was the oldest member of the Philadelphia bar, was known as the author of the consolidation act, and of the Price act, by the latter of which charitable legacies were rendered void in Pennsylvania if made within thirty days of death of testator.

Yet upon the young men of the board rather than on the veterans was to fall the oversight of the administration of the hospital. For twelve years this was conducted by resident male superintendents in the method, the best then prevalent, of hiring nurses in numbers varying with those of the patients; dismissing and taking them on as economy or necessity required, always seeking the best, but not always finding the best in the market when wanted.

By this method, coupled with moderate salaries to officers, the per diem expense was kept at a low average.

In 1875, its first calendar year, its wards received 642 patients, and its 7 dispensaries treated 4,569 cases.

The medical corps of the hospital was in three classes: Medical staff, residents, and dispensary staff.

The medical staff were 12 in number, 3 being professors of the medical faculty of the University, and 9 clinical professors and lecturers attached to the hospital, whose duties did not extend to the medical school. The residents were 2, selected semiannually from the medical alumni of the University, in a competitive examination by the medical staff, for a service of six months. Each dispensary was under charge of a chief. Other doctors assisted in them.

The entire corps worked without pay, valuing indirect advantages. The corps contained every grade of medical experience, the young alumnus with life before him, intent upon duty, so that life might be a success, a dispensary assistant and its chief, the clinical lecturer, the clinical professor, who devoted himself to the hospital freely for the benefit of the medical school, and the great names of the medical faculty, who upheld the hospital that it might uphold the school.

Dr. D. Hayes Agnew was the member of the corps then most widely known, perhaps, throughout the United States. He afterwards gained, as one of the surgeons attending the deathbed of President Garfield, a national reputation, not only in a professional but also in a popular sense.

The building and operating of the hospital having been so far successful, an appeal was made to the legislature in 1874 to carry out the original design by appropriating \$125,000 to build the east wing, conditionally upon \$100,000 being raised to endow it.

By this time, however, other hospitals were in the field with similar intent. One of these diverted the appropriation, and for seventeen years the University hospital asked no aid from the State.

In 1875 it tried to create a ward for incurables. Its annual report

for that year contained an appeal for this purpose, which was repeated in 1876, 1877, and 1878, meeting small response. But, bent upon so good a purpose, the board definitely resolved, on August 12, 1879, to open such a ward so soon as \$100,000 were subscribed for endowment, and that the sad sound of "incurable" might be removed from the ears of its inmates, the board thought the name to be given should be "The Ward for Chronic Diseases." By the end of the year \$42,000 had been contributed. That the Brompton Hospital for such diseases was one of the best endowed in England, and that in America 20 per cent "of the entire adult population perishes from these affections," were thought strong reasons to hope the endowment would be quickly completed. The effort, however, did not ripen at once, but bore good fruit later on.

Early in 1875 the trustees authorized the Board of Managers to invite a committee of ladies to aid "in the discharge of household duties, and to administer such comfort to the patients as their thoughtful care might suggest. Fifteen (than whom no others in Philadelphia were better qualified) were chosen among women given to good works, mistresses of large establishments, relatives of benefactors or of managers of the hospital. With the instinct of true women they declined to assume that title officially, and denominated themselves the Board of Women Visitors. It was the duty of these women to visit the kitchen, laundry, storerooms, wards, library, etc., and to call attention of officers and managers to defects in order, in niceties, cleanliness, and in refinements of polish.

It became their delight to provide the means to remedy deficiencies. They established a yearly Donation Day, on which, as well as throughout the year, they solicited gifts in kind and in money. Their efforts as a board yielded for several years an average of about \$1,500, which in part was devoted to betterment of the fixtures and apartments under their care, to uniforming the female nurses, to paying the salary of a head nurse, and to other such like things as from time to time seemed to them most imperative.

More than once or twice some large matter, to which the finances of the Hospital could not reach, has been provided by the private purse of one or other of them.

This board increased until it numbered 24; by the addition per chance of some prominent woman, the wife of a Chief Justice, or of an ex-cabinet officer, or possibly of some serious woman, who would do religious service among the patients or nurses; and, in 1889, in order that its ideas might readily influence the government of the hospital without any semblance of a dual authority, it was given three representatives on the Board of Managers.

Thus equipped with men, women, and material, the hospital passed its five initial calendar years, caring annually for an average of 648.4 patients, treating 5,634 dispensary cases, its average death rate being 7.648 per cent of patients treated, and its per diem \$1.29.

There was a kindly feeling running through it, in a degree even a social one.

Its board met in evening hours at the home of its president, or, as he fell into feeble health, of its vice-president.

On March 30, 1879, its president, Dr. Geo. B. Wood, died, aged 82 years.

Among the resolutions to his memory, prepared by his friend Eli K. Price, and published in the Annual Report of 1879, there is the expression:

Let us be thankful to the Creator for giving us and the world a citizen and scientist of knowledge so ample, of humanity so unbounded, of love to man and God so perfect. Thank God that all his long life was so useful, honorable, and happy.

The hospital received from Dr. Wood's estate \$60,000, and appropriated it, as directed by his will, to endowing, in memory of his father-in-law, the Peter Hahn Ward.

Eli K. Price succeeded Dr. Wood, and watched "with paternal vigilance over the interests of the hospital."

In 1882 an important movement was started by Dr. Pepper for the establishment of a department for patients suffering with chronic diseases, especially of the heart and lungs. The claims of this unfortunate and numerous class of sufferers will always appeal with special force to the humane. Endowment for seventeen free beds (\$5,000 each) was secured, and then the interest of the late Henry C. Gibson was so fully enlisted that he undertook to construct an additional wing of the hospital especially for these chronic cases. The plans were prepared by Mr. Hewitt in consultation with Dr. Billings, and the building was constructed at a cost of \$85,000. It is the most important addition to its building the hospital has yet received. At its formal opening in 1883, the name of the Gibson Wing for Chronic Diseases was given to it, as a fitting tribute to this generous and public-spirited citizen whose benefactions to all departments of the University were so numerous and liberal.

This ample structure gave space for remodeling the dispensaries. These had grown in number from 7 to 11, and nearly doubled their service. At this time also the medical staff was increased by the appointment of 11 assistants in various branches of medicine and surgery; and a third resident was appointed.

On March 3, 1883, Henry Seybert died and bequeathed to the Hospital the sum of \$60,000, "the income whereof shall be devoted to the maintenance of a ward in connection with the department of chronic diseases, said ward to be named and designated as my friend, Dr. William Pepper, shall desire it." In accordance with this, the ward has received the name of its generous founder.

This interesting department of the University Hospital, therefore, is well started, and important testamentary disposition in its favor has also been made public, though not yet operative.

The president of the Hospital, Eli K. Price, died November 15, 1884, at the age of 87, full of years and honors. He was succeeded by the present incumbent—the writer of this history.

In the seven years from 1880 to 1886 the average yearly figures of the hospital were 1,129 patients, 7,300 dispensary cases, a death rate of 8.027 per cent, and a per diem of \$1.05.

Although these figures seemed gratifying, the example of a neighboring institution, which had introduced the English system of hospital administration, inclined a large majority of the managers to believe the conditions of the hospital of the University would be improved by ceasing to hire and discharge nurses with the influx and efflux of patients, and by maintaining within itself a corps of women in training for nurses under a directress of nurses and a superintendent of the hospital, both of them being ladies skilled in nursing.

As the demand for trained nurses was greater than the supply, and their wages large, it was believed that women capable of becoming thorough nurses would serve the hospital for two years for little or no pay beyond their education and maintenance. It was supposed also, that saving the salaries paid hired nurses would make this arrangement economical.

A member of the board of women visitors, aided by a few near relatives, offering to erect in memory of their mother, on the hospital grounds a building especially adapted for the Nurses' Home, it was decided to accept the offer and to change the administration of the hospital by placing it under the superintendency of a woman, and by founding a university training school of nurses under the instruction of a directress of nurses, and of lectures given by the medical staff.

After wide advertising and prolonged correspondence, an English lady was chosen superintendent and entered upon duty September, 1886.

The home and school are adapted to forty-five learners. These, after examination, are admitted on probation for three months, and, if satisfactory, serve for two years.

The opening in October, 1888, of a small maternity ward was an event which promises to be of much importance to the teaching of the hospital. It is designed that it shall give to every student of the medical school a practical lesson in the art of delivery.

The money for its erection and partial endowment was gathered from among his friends by a newly elected professor of obstetrics, a fact which illustrates how the forward steps of the hospital have been often made.

In the following year a long ward was divided into fourteen rooms for private patients. The cost of this change was advanced by a member of the medical staff. This kind act increased the number of such rooms to twenty-five, and much benefited the revenue of the hospital.

Isaiah V. Williamson died March 14, 1889. A ward has been dedicated to his memory.

Dr. D. Hayes Agnew, in April of the same year, resigned the chair of clinical surgery, and was made honorary professor of the same chair.

A mortuary building was erected later in the year at a cost of over \$11,000, procured by the exertions of a member of the board of lady visitors.

It contains compartments for the preservation of twelve corpses in ice, a table constructed under special patents for post-mortems, a room for a pathological laboratory and museum, and a small mortuary chapel.

The outcome of the change of administration inaugurated in 1886 was "a most marked improvement in the conduct of the hospital."

But the support of a training school, however more efficient it might be than former methods as a system of nursing, increased expenses and made a higher per diem. This was due in part to the improved nursing, which filled the private rooms with costly patients, in part to the increased number of nurses, and in part to maintenance of nurses being continuous, even when the sick in the hospital were but few.

When confiding the charge of the hospital to a woman, the board had appointed three of its number an advisory committee, to be consulted by her, and had deprived her of the power to suspend residents from duty, a power which, though never exercised, had rested in male superintendents.

It may therefore be said to have assented to the value of female government in a slightly modified sense, *i. e.*, when tempered by male influence.

The work of this hospital is very varied and complex. It comprises the care of sick in dispensaries, in wards, or as patients in private rooms with costly attendants. It embraces the daily teaching of students in great clinics, attended by 400 or 500, in small class rooms, and in little squads by the bedside. It is concerned with the instruction of nurses, the records of registrars, the compounding of drugs, with autopsies and much experimentation. It has respect to the coming and going of ambulances, of anxious or of sorrowing friends, of the Bible reader, the minister, the priest, and the coroner. All this complexity of the business of healing or of death is conducted in the midst of the affairs of a great housekeeping, amid the delivery of coal, of ice, or of food, amid the oversight of the cook, the scullion, the washerwoman, and the fireman.

When, then, in its report for 1889, the board noted "a most marked improvement in the conduct of the hospital," it accorded great praise to the administration which had brought this about.

That year was the most peopled with sick the hospital has ever seen, its in-patients numbering 1,432, over 20 per cent more than before or since.

Toward the close of the year the growth and development of the hospital, coupled with some strain that growth was beginning to throw on its finances, showed the duties of its administration to be increasingly difficult, and inclined the board to emphasize the value of the male quality in the control of an organization so complicated and so active. Becoming aware that Dr. John S. Billings, of the U. S. Army, a gentleman of distinction, and especially qualified by ability and experience, both in military and civic hospitals, was available, they elected him on December 12, 1889, director of the hospital and *ex-officio* member of its board.

This appointment was not intended to abolish, but to strengthen the existing administration. The director's duties were to be coördinate with others due by him to the University's Department of Hygiene. His residence was not to be in the hospital. He became, as it were, an advisory committee, with power.

His first act was to adjust expenses to income, causing a smaller roll of patients and a higher per diem, pending the reorganization of finances. Upon his report as an expert that certain renovations and betterments were necessary to bring the physical condition of the hospital up to modern standards, the members of the board determined to solicit \$50,000 from the charitable, \$30,000 being for renovations, and \$20,000 for arrears of debt. The major part was gathered in a few weeks.

A legacy of \$80,000 fell to the hospital by the death of George S. Pepper, on May 2, 1890, and made it possible to dedicate a fourth ward to the memory of a great benefactor and to disembarass finances from current debt.

Believing the State would not again refuse its aid to the child which it had created, an application for an appropriation based on the approval of the Board of Public Charities was made to the legislature of 1890-'91. By an act signed by Governor Robert E. Pattison, June 16, 1891, a grant of \$20,000 was obtained for betterments, and of \$15,000 for maintenance of indigent patients at \$1 per day during 1891 and 1892.

It is not probable that the State will ever refuse to repeat this grant. And conditions may therefore be now supposed to have arisen which will render normal the relation between the plant of the hospital and its income and reduce the per diem to the sum expected under natural conditions.

Brief allusion must be made to the very interesting establishment of the children's ward in 1891, which was due to the zeal and efforts of Dr. and Mrs. De Forrest Willard and a number of their friends.

A summary of the history of the hospital, and perhaps a reasonable forecast of its future, can be made in a few sentences. Since its inauguration 15,000 patients (of whom 11,000 have been free) have been cared for in its beds, and 112,500 in its dispensaries. The average residence of its patients has been 29.259 days; its average death rate, 7.626 per cent of patients treated; its average per diem, \$1.26.

In the first five years of its existence, the formative period of its affairs, its average death rate was 7.648 per cent and its per diem \$1.06.

In its second period, the seven years in which it had become fairly settled to work according to old methods, its deathrate was 8.027 per cent and its per diem \$1.05.

In the succeeding four years in which it has been adjusting itself to new methods its death rate has been reduced to 6.897 per cent and its per diem has been \$1.57.

When enabled by its increased income to augment the number of its patients, its per diem will probably stand at about \$1.35.

The difference between this and the per diem of former periods will be offset by profits from its increase of private rooms, or, if any difference remain, it will be the price paid for decreased mortality and the benefit the public gains from having highly trained nurses at command.

It has a site and buildings estimated to be worth \$450,000, and endowment funds amounting to \$616,277.77. Total (property and endowment), \$1,066,277.77.

Four of its wards are endowed by legacies, and sixty-five free beds in addition have been endowed.

Its medical corps is constituted as follows: Resident physicians, each serving eighteen months, 6; dispensary staff, serving eleven dispensaries, 36; assistant surgeons, 2; assistant physicians, 4; other assistants, 4; the medical staff, 13; total, 65. Of which there hold duplicate positions 2, making a total corps 63.

Its clinics and wards are daily frequented by the 800 students of the medical school of the University; lectures and lessons from the living subject are given to these students for twenty hours per week during their school term.

Not far from 3,000 students have already gained from these instructions the practical knowledge they have taken into professional life.

That the hospital is not alone an infirmary, but also a school, augments the expectation its patients have of recovery because of the close scrutiny teachers must give to diseases in order to describe them.

Its board of managers consists of 26 women and men, and the board of women visitors of 24 women, 4 of the latter being included in the former.

These persons, together with the medical corps, make a total of 113 care-takers of this hospital. These move together in that harmony and mutual respect by which alone the great results they have accomplished could have been achieved.

CHAPTER XV.

THE VETERINARY DEPARTMENT.

Prof. Rush Shippen Huidekoper, in his introductory address at the opening of the Veterinary Department of the University of Pennsylvania, in October, 1884, says: "Our Veterinary Department has been contemplated for some time, and was rendered practicable through the acquisition by the University of this piece of land from the city of Philadelphia, and the liberality of Mr. J. B. Lippincott and Mr. Joseph E. Gillingham, who have furnished the means for these substantial buildings and outfit. Unfortunately a veterinary school can not be ordered and completed like a primary schoolhouse, and we have but the corner stone of what I believe will be a great institution."

In the same address the professor speaks of the suggestions in 1806 of Dr. Benjamin Rush, of the University, as to the importance of adding a Veterinary Department to the institution. He then gives masses of figures, both as to numbers of domestic animals in the United States and as to their money value, running up into the hundreds of millions, and which since that time have increased to many more millions. The effects of disease, especially of epidemics, upon these numbers and these values are forcibly pictured, so that no thinking person can doubt the importance of intelligent veterinary instruction and its good influence upon the humanity, the health, and the wealth of communities.

The progress of the Veterinary Department towards becoming a "great institution" has been as follows:

Under date of November 14, 1882, Mr. J. B. Lippincott writes:

Mr. WHARTON BARKER, Esq.,

Treasurer:

DEAR SIR: I herewith inclose 10 of the first-mortgage bonds, series A, of \$1,000 each, of the Sunbury, Wilkesbarre and Hazelton Railroad. These bonds are intended as a contribution to an endowment fund for the purpose of establishing a Veterinary Department under the control of the University of Pennsylvania. Until the said department is established, the income of the said bonds is to be disposed of according to the best judgment of the trustees of the University, and always having in view the object of the contribution.

Very respectfully,

J. B. LIPPINCOTT.

A special committee on organization was appointed, consisting of Messrs. Lippincott, Eli K. Price, and Fairman Rogers. This committee reported December 5, 1882, recommending further subscriptions and



VETERINARY HALL.

giving outlines of plan, and requesting an appropriation of land. The subscriptions were authorized and the land dedicated.

On February 1, 1883, Mr. J. E. Gillingham sent a check for \$10,000, and March 6, 1883, the chair of veterinary anatomy and pathology was created. Dr. Huidekoper was nominated for the position, and on April 3, 1883, he was elected to fill the place. Pending the construction of the buildings and further organization, he visited Europe in order to observe and to profit from any improvements in the teachings of veterinary science in the old country.

On May 1, 1883, the committee presented plans of buildings, which were approved and construction ordered; and

On June 5, 1883, a contract was approved for the construction of the main buildings, at a cost of \$16,905.

On December 3, 1883, the committee on the Department of Medicine reported a plan of organization, and recommended that the chairs be filled as follows: Chemistry and medical chemistry, Prof. Theodore A. Wormley; materia medica and therapeutics, Prof. Horatio C. Wood; physiology, Prof. Harrison Allen; comparative physiology, Prof. R. M. Smith; morbid anatomy and general pathology, Prof. James Tyson; botany, Prof. Jos. T. Rothrock; zoölogy and parasites, Prof. A. J. Parker; veterinary anatomy, internal pathology, contagious diseases, and sanitary police, Prof. R. S. Huidekoper.

A permanent standing committee on the Veterinary Department was authorized, and Messrs. Lippincott, Price, Rogers, Dr. Mitchell, and Dr. Hutchinson were appointed.

In December Mr. Lippincott offered another \$10,000, provided \$15,000 should be raised by subscription. This sum Mr. Lippincott generously gave a few months later apart from the condition, thus making his entire contribution to the school \$20,000.

On October 2, 1884, the department was formally opened, 20 students having been enrolled, with an inaugural address by Dr. Huidekoper, from which quotations are made in the beginning of this article. A few weeks after, W. Horace Hoskins, V. S., was appointed demonstrator of veterinary anatomy, and Alexander Glass, V. S., demonstrator of veterinary pharmacy.

In 1884 the erection of stables to be used as a hospital was undertaken.

Plans were approved of structures to extend 210 feet on Pine street, 36 feet wide, with a 10-foot piazza, at a cost of \$16,000. Dr. William L. Zuill was elected professor of surgical pathology, and Dr. William Hunt a member of the veterinary committee of the Board of Trustees.

On January 5, 1886, Mr. J. B. Lippincott died, a loss to the school memorialized in fitting resolutions by the trustees. Since then his children have generously sustained the department, and have given annually at least \$4,000 for its support.

In 1887 the veterinary faculty was authorized to apply to the legislature for an appropriation of \$50,000 for its hospital, half of which was secured.

The appropriation by the State legislature of \$25,000 for the hospital of the veterinary department was conditioned upon the establishing of 12 free scholarships, to be held by students nominated by the governor of the Commonwealth. There are also 3 city prize scholarships, to which appointments are made by the Board of Education of the city of Philadelphia.

On June 8, 1887, the first veterinary class graduated, numbering 10.

On June 6, 1888, the second veterinary class graduated, numbering 14.

June 5, 1889, third veterinary class graduated; number, 7.

On September 24, 1889, a board of managers of the hospital was appointed, consisting of five trustees, five citizens, and two members of the faculty; two more citizens were added in 1890.

In October, 1889, Dr. Huidekoper resigned his professorship and severed his connection with the school, which so largely owed its organization to his zeal and labors. The titles of several chairs were changed; that of Internal Pathology and Zoötechnics to the Theory and Practice of Veterinary Medicine; that of Veterinary Anatomy to Veterinary Anatomy and Zoötechnics. Dr. John Marshall, assistant professor of chemistry in the medical department, whose marked executive ability in the management of its chemical laboratories indicated his fitness for the position, was made dean of the faculty.

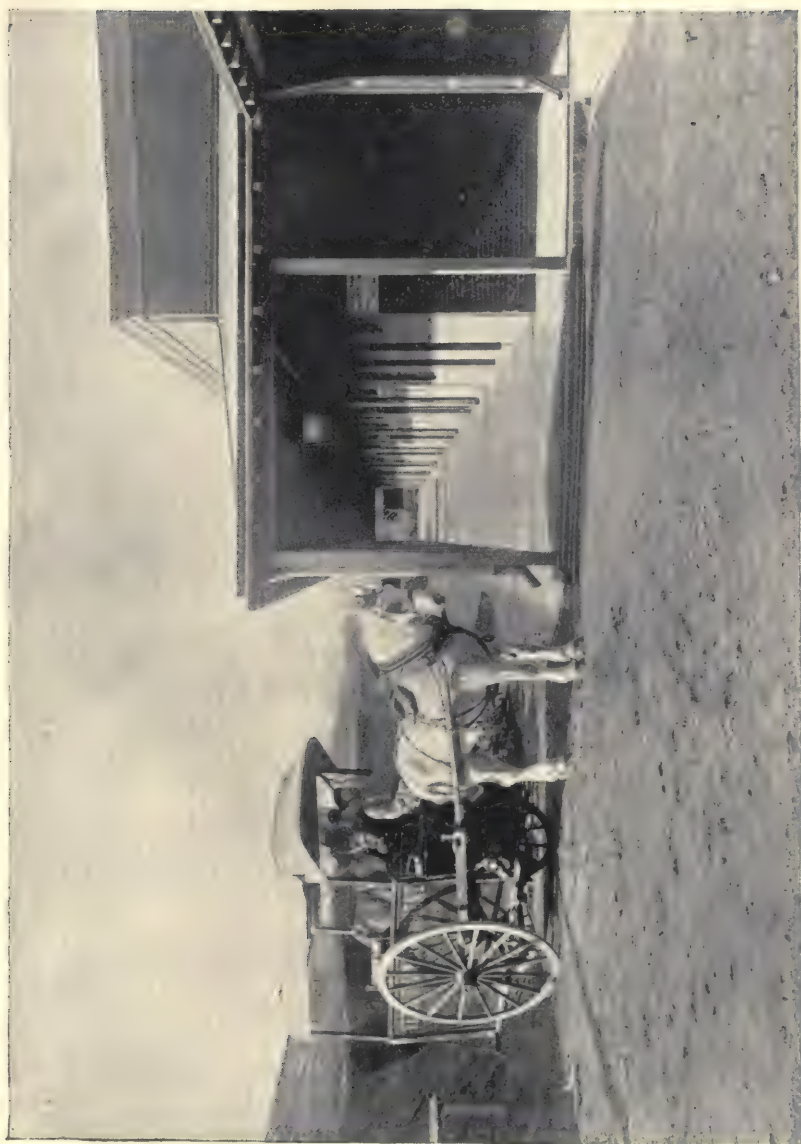
In 1890 Charles Williams, v. M. D., was elected lecturer on practice of veterinary medicine.

June 5, 1890, the fourth class graduated, numbering 24.

This record of the progress of the Veterinary Department from its beginning up to the present time shows, we think, an interest and energy which assure its becoming a "great institution."

The list of required studies in this department looks formidable, but a close inspection of it will show that there is not an ornamental branch of knowledge mentioned in it, nor one that is not indispensable to the education of one who aspires to become a thoroughly trained veterinarian both in theory and in practice. What a contrast it suggests to former opportunities and to those who from want of education and training practiced only crude and purely empirical methods.

The veterinarian in this country has not yet been granted the position to which he is entitled. He deserves rank in the army, for his office is of the first importance to the successful movement of battalions and squadrons. In civil life he should have to do not only with the treatment of individual cases but with the epidemics and their causes, and with the inspection of animals living and dead, and of all foods derived from them. He should have summary power to stamp out contagious disease due to animal or vegetable parasites, or due to other causes, for in doing this there is no estimate of the saving of human life that may be accomplished. The writer has no doubt that most if not all of the outbreaks of mysterious human disease which suddenly invade parts of all countries with great fatality have their origin in some form



VETERINARY HOSPITAL, WITH AMBULANCE.



LEGATIE D'AM. NEDERLAND HAY

of organic poisoning, animal or vegetable, taken into the system as food or drink. Educate observers, and the remedies, heroic or simple, may be applied.

A great advance was made in the efficiency of the Veterinary Department when its hospital was placed under the direction of a board of managers, all gentlemen who have great interest in the work, who meet monthly, and who take both great and small things under their notice.

The gentlemen who constitute this board are: Joseph E. Gillingham, president; J. Bertram Lippincott, secretary and treasurer; S. Weir Mitchell, M. D., Richard Wood, William Hunt, M. D., John C. Sims, H. Pratt McKean, jr., John Marshall, M. D., Archibald Montgomery, Walter R. Furness, Charlemagne Tower, jr., William L. Zuill, M. D., D. V. S., Arthur V. Meigs, M. D.

They second all reasonable efforts of the hospital staff and make the appropriations for it.

The hospital of the Veterinary Department of the University of Pennsylvania is supplied with every possible facility for the best handling and care of sick and injured animals of all kinds.

An ambulance is provided for the conveyance of sick and lame horses. For this service the charges are made according to distance traveled.

Animals are admitted into the hospital at any time, day or night.

A free dispensary clinic is conducted by the members of the hospital staff daily, except Sunday, between 8 and 10 a. m.

The animals are under the professional care of the hospital staff of veterinarians and of the house surgeon, who resides in the hospital.

A competent farrier is attached to the hospital, who does a limited amount of ordinary shoeing in addition to shoeing for lameness; the latter only under the direction of the hospital staff.

The importance of veterinary science, and its application for humane benefit in other countries are in contrast to our own, and the writer can not better conclude this notice than by quoting from an address of Dr. Huidekoper, recently delivered in this city:

In Berlin and Paris a large force of veterinarians is constantly employed in the slaughterhouses. In Berlin all live animals shipped into the city must be unloaded in a given quarter, where, by a force of some twenty-five veterinarians who have no other duties, they are first inspected on landing. They are then removed to stables and reinspected. Watch is kept over them during slaughter and the removal of the viscera, and, after dressing of the carcass, the flesh is reexamined. In the case of hogs and some other animals, portions of each animal from different muscles are sent to an office where they undergo an examination by means of a microscope, for trichina and measles.

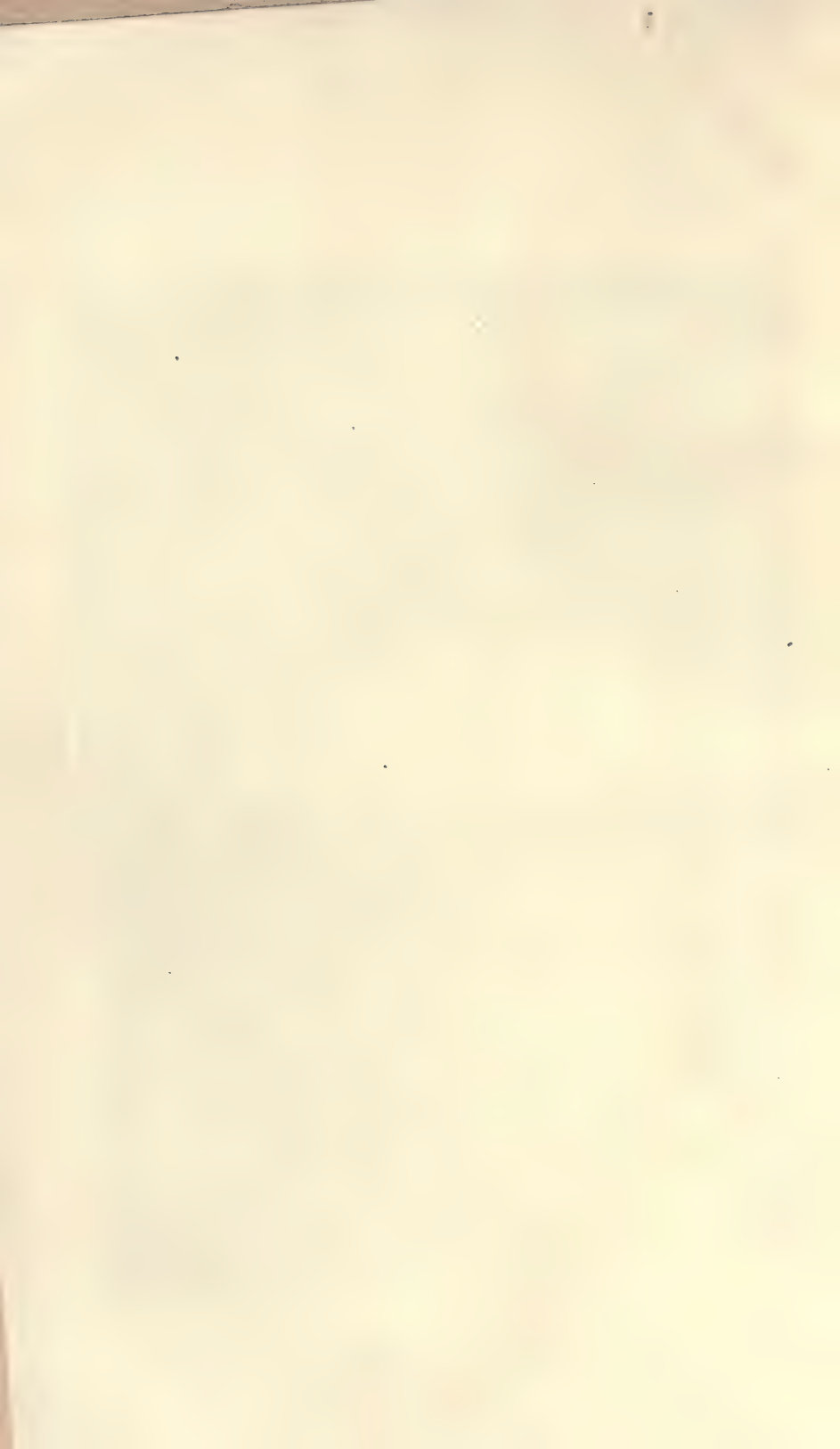
The duty of the veterinarian employed as meat inspector in the cities of Europe, includes the examination of animals in the cattle-market; the examination of live animals in the slaughterhouses and abattoirs; examination after slaughter; examination of meats brought into the city that have been slaughtered elsewhere; inspection of the butcher shops; inspection of the traveling butchers and huckster wagons, and inspection of the meats furnished to hospitals, prisons, and other public institutions.

In the United States but little has been done toward regulating the inspection of

animal food. In our larger cities, frequently attached to the board of health, at other times appointed as independent inspectors, we have men known as food inspectors. In the majority of cases these men are appointed more for political reasons than for any other, and are men who, however honest they may be, are absolutely ignorant of the subject and incompetent to decide upon the character and quality of a piece of meat; again, however competent and faithful these inspectors may be in their duties, the laws regulating food inspection in any of the cities of the United States are incomplete, and do not give the proper authority for condemning food unfit for use, and do not provide the proper indemnity for the owners of those animals who are so unfortunate as to have purchased a live animal whose flesh they do not know is unfit for use.



DISSECTING ROOM—VETERINARY HALL.



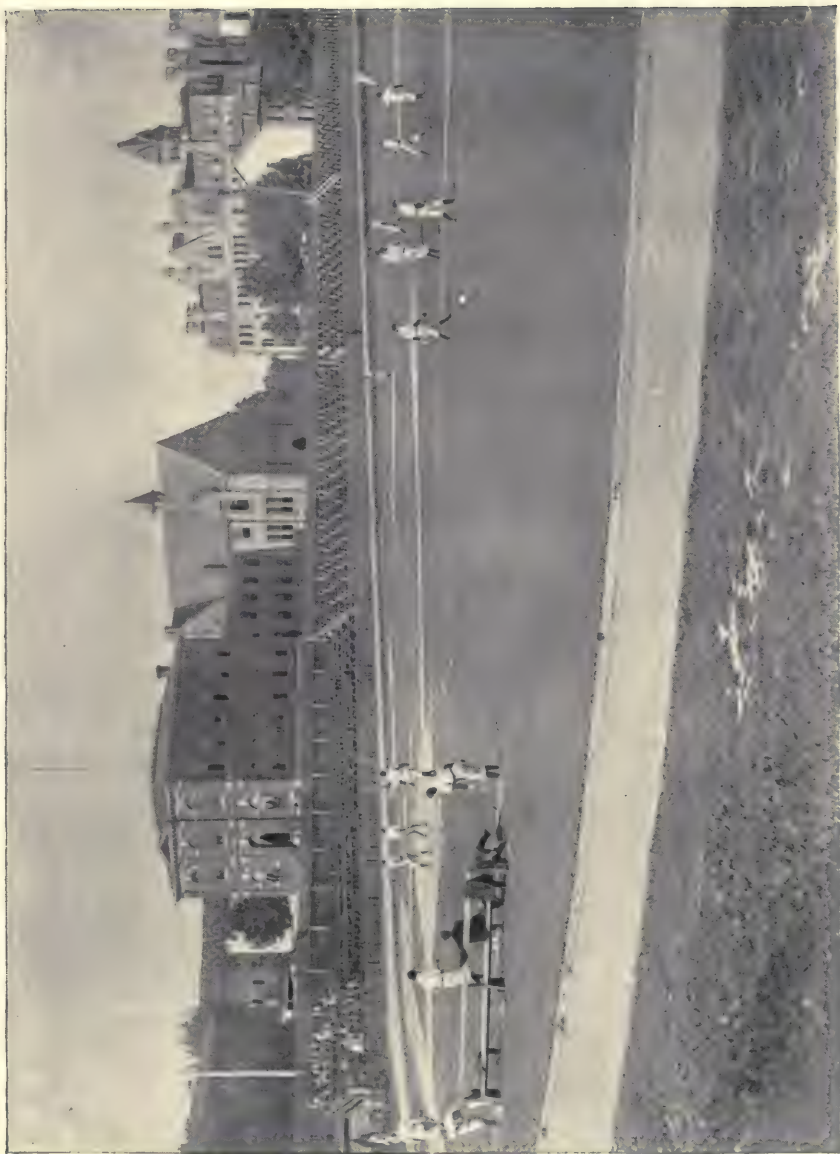
CHAPTER XVI.

PHYSICAL EDUCATION AND ATHLETICS.

The department of physical education was added to the University during the winter of 1885, the inaugural address being delivered by Dr. J. William White, January 21. The reason which induced the trustees to make this addition was that they desired to give to every student a means by which he could accomplish his life work with greater credit to himself and benefit to his fellow men. Not only have many alumni of our own University recognized that their life work has been hindered by a want of proper attention to their physical needs, but also many alumni in all of the great universities, both in America and England, have been convinced of the same fact. It has been proven again and again that in every occupation, calling, or profession in which a man is engaged, in every position in life which he can occupy, a properly developed frame is not only of advantage to him, but is almost essential to success. It is also known with the same certainty that, other things being equal, the man who possesses health and strength is not only able to do better work than his rival who lacks those attributes, but he will do it more easily, pleasantly, and with the greatest amount of comfort to himself and usefulness to his fellow men. The trustees when adding this department supplied places where the practical part of the course could be properly carried out. These were a gymnasium and an athletic ground having a fine quarter-mile track for running, walking, and bicycle riding, which was laid out with funds subscribed by some of our alumni. In that part of the athletic ground which was surrounded by the track, an admirable baseball and football field was made. A grand stand and club house were also erected and a competent person procured to take charge of the grounds. The gymnasium was supplied with the most modern and best apparatus and a sufficient number of shower baths added to meet the demands of the students in the Collegiate Department. The system adopted was a thorough and proper one and the same is used in the University at the present time. Each student has his heart, lungs, back, chest, abdomen, etc., examined, so that defects may be noticed when existing; a record of each student's family history is also kept and by referring to it one can easily learn whether there has been a predisposition to nervous, pulmonary, cardiac, digestive, circulatory, or other diseases; and in addition lectures are delivered upon

clothing, diet, sleep, ventilation, bathing, and upon other matters pertaining to personal hygiene. The student, having been stripped prior to the examination of his heart, lungs, etc., is also carefully examined as to his weight, height, the circumference of his chest, the size and condition of his legs and thighs, arms and forearms. The sum of these measurements expressed in any convenient terms which may be selected, centimeters or inches for example, are taken as an approximate indication of his development. It indicates, that is, with more or less accuracy, the amount of working material which he possesses, but it altogether fails to show the actual working value of that material. Having recorded the development, the total available strength of each student is then obtained, and for this purpose a series of tests, which show the strength respectively of the back, legs and thighs, arms, and chest, forearms, and abdominal muscles, is made. The sum of these is expressed in the same terms as those indicating the development and can readily be compared with it, the difference between the development and the total strength indicating the "condition." If the strength is in excess of the development the condition is good, and the figures representing it have a plus value; if the reverse is the case, the condition is poor, and the figures have a minus value. These examinations are repeated once a year and any changes that may have taken place noted. With such a system it has been found that great benefit has been the result not only to our students and University, but also in such institutions as Harvard, Yale, Cornell, Amherst, and many others. The regard which Harvard has for its department of physical education, and the benefit her students have received from it, can best be understood by a quotation from President Elliott's own words. He says: "It is agreed on all hands that the increased attention given to physical exercise and athletic sports within the past twenty-five years has been, on the whole, of great advantage to the University, that the average physique of the mass of our students has been sensibly improved, the discipline of the college been made easier and more effective, the work of many zealous students been done with greater safety, and the ideal student been transformed from a stooping, weak, and sickly youth, into one well-formed, robust, and healthy." The same sentiment has also been expressed by one of the professors in Yale College. Such admissions and sentiments from colleges with the standing possessed by Harvard and Yale can not fail to impress any fair-minded person with the benefit derived from a rational course of physical culture.

The leading educational institutions of America have recognized the importance of scientific care of the body and our University was among the very first. As time went on, interest in this work increased, and the result is that our gymnasium which, at first, was able to meet the demands, is now unable to accommodate one-third of the students who wish to avail themselves of the benefits derived by using it. The course in physical education has never sought to cultivate a student's body at the expense of his brain; but its aim, already partially successful,



THE ATHLETIC GROUNDS.

has been to make the sick well; the idle, active; the nonstudious, studious; and the weak, strong; these having been accomplished by showing each student how to develop himself in a rational and symmetrical way in mind as well as body, impressing him that the prime factor in the course was health and not strength. The department has always had three chief objects in view, first, to supply the demands and remedy the defects of every constitution; secondly, to improve the general health and strength, and, lastly, after having made the improvements, to retain them. As artist, sculptor, or architect seeks for a perfect model so should every student seek perfect health by striving to obtain a symmetrical development, both mentally and physically. The health of the mind primarily depends upon the health of the body; vigorous mental occupation or even refined enjoyment soon becomes distasteful if one's cerebral processes are not supported and reënforced by sound and robust physical health. In the majority of cases where our students have been naturally athletic and fond of sports, it has been found that these students rank among the honor men of their class, and it is quite certain that our different athletic sports in no way interfere with the mental standing of the men who indulge in them. Moreover, it has also been found here and elsewhere that men who fail in their studies for want of systematic diligence also fail in athletic contests for the same reason. We need a larger gymnasium where we can accommodate at least from one hundred to one hundred and fifty students at a time; a place where recreation can be mingled with bodily benefits, where students from all departments may be brought together and learn to know one another, where the tedious hours of the class room may be forgotten for a short time, thus giving the brain an opportunity to obtain the rest it so often needs. Brain overwork is much more exhausting than body overwork because the structure of the brain is much more delicate, hence the great need for proper cerebral rest, and a better means than the use of an attractive gymnasium is hard to find. Many students who have inherited weak lungs, irregular hearts, nervous tendencies, and many other weaknesses, have been so improved since this department was first started, that their troubles have entirely disappeared, and they have thus been enabled to increase their mental work with less danger of jeopardizing their health and have gone forth better prepared to compete with other men in the life of our great Republic, and to aid in the solution of the many sociological and educational problems which remain to test the mental and physical strength of workers of our generation. In conclusion, let me say that the department is indebted to the Board of Trustees for the support they so kindly gave it when it was first founded, and it is to be hoped that with the results already obtained, they will recognize the necessity for adding to our University a gymnasium worthy of and fit for the great duty of physically preparing the thousands of our coming alumni for their life-work, both as individuals in the struggle for existence and as faithful sons of our *alma mater*.

CHAPTER XVII.

THE DEPARTMENT OF PHILOSOPHY.

The Department of Philosophy may be said to have come into existence at a meeting of a group of professors at the house of Provost Pepper on March 9, 1884. The meeting was called in response to a growing feeling that the higher instruction in liberal studies should be organized and put upon an equal footing with other departments in the University. A plan of organization was drawn up, which, being subsequently approved by the honorable Board of Trustees, served as a working basis for the new department until the autumn of the year 1888, when a number of changes were made. As the earlier and later plans were essentially alike in all that concerns the form of instruction, the choice of studies, and the requirements for the degree, differing chiefly in the functions exercised by the officers of the faculty, a detailed description of the plan first adopted is unnecessary. It is sufficient to state that it took as model, in a general way at least, the philosophical faculty as it at present exists in the German universities, and it was intended to cover about the same ground. A few students were entered and work was begun; but, the attention of the University being diverted to other movements, it was not, for the time being, prosecuted with the earnestness and vigor which would warrant an expectation of any large measure of success.

At the beginning of the College year, 1888-1889, a committee was appointed to draw up a new plan of organization, retaining the essential features of the old one, but obviating some of its inconveniences. This plan, modified, and approved by the faculty, was accepted by the Board of Trustees in November, 1888, and has been in operation since. The officers of the faculty are a dean, a secretary, and an executive committee. The dean presides at meetings of the faculty and executive committee and at all examinations of candidates for the degree. He receives applications for admission to the department, and all students report to him, at the beginning of the University year, the studies they intend pursuing, or come to him for advice in making their selections. The executive committee, consisting of five members, represents the various groups of allied studies in which courses are offered, and is empowered to accept or reject applications for admission, to arrange for courses of lectures, and to publish the yearly announcements. It presents to the faculty, through the dean, at the stated yearly faculty

meeting on the third Saturday in May, a report of the work done during the year.

Regular students in the Department of Philosophy, candidates for the degree of doctor of philosophy, must be graduates in arts or science of an American college, whose degrees are accepted by the University as equivalent to its own, or they must satisfy the executive committee that they possess an equivalent preparation for advanced studies. The admission of students not holding the bachelor's degree has been very exceptional. Special students, not candidates for the degree, are admitted to the instruction of the department on application to the dean, by consent of the professors whose courses they select.

A candidate for the degree of doctor of philosophy must pursue graduate studies for at least two years, present a thesis showing original research in his line of special study, and pass a satisfactory examination. Of the time required in graduate study, one year must be spent in residence at this University; the remainder may have been spent at some other university.

The candidate for the degree presents himself for examination in three studies, one of which he designates as his principal or major, and the other two as his subordinate or minor subjects. The list from which he may choose is determined by the faculty, and may be modified at its will. As approved at the adoption of the new rules in 1888, it included the following subjects: American archæology and languages, American history, botany, inorganic chemistry, organic chemistry, comparative philology and Sanscrit, English language and literature, experimental psychology, Germanic philology and literature, general history, Greek language and literature, history and development of legal institutions, mathematics, mineralogy and geology, philosophy, physics, political economy, political science, romance philology and literature, Semitic languages and literature, and zoölogy. A few changes have since been made, but the list is substantially what it was when first drawn up. It was not felt to be altogether satisfactory, and it contains, as will be observed, several serious gaps. These were due to the fact that the professors representing certain lacking subjects were overburdened with undergraduate work and could not be asked to add to their labors by giving systematic graduate instruction.

Examinations for degrees are conducted in the presence of the dean and three examiners, the professors in charge of the major and minor subjects. Notice of the time and place of the examination is sent to each member of the faculty, and any professor may attend and question the candidate if he see fit. After the examination, the dean and the examiners are constituted a committee to decide upon the success of the candidate. If they are not unanimous, or if any other professor attending object, there is a provision that the case shall be referred to the faculty. The successful candidate may, with the consent of the executive committee, and under the direction of the professor in charge of

his major subject, print his thesis as one accepted for the degree. Whether printed or not, a copy must be deposited with the Librarian of the University. As the object of the instruction in the Department of Philosophy is to train specialists in literature and science, the student is left largely to the care of the professor in charge of his major subject. He follows his advice in methods of work and in direction of work. Where the number of students is small there is a possibility of much familiar intercourse between professor and student, than which nothing can be more stimulating or helpful. The younger scholar sees his teacher at work, catches his spirit, and absorbs his methods. The form which the instruction shall take is left very much to the judgment of the professor. In some cases it is given almost wholly in the laboratory, in others in formal lectures, and in still others through the medium of the seminary in free discussion and criticism of papers prepared by the student. In all cases its object is to teach the student to work for himself and to be independent. He is supposed to make himself thoroughly familiar with some department of his major subject, and to have a fair knowledge of the two subjects chosen as minors. These last he may choose either because they are of importance from the point of view of his major, or merely for the sake of gaining a broader culture. As a matter of fact most students choose minors which serve as aids to their special subject of study. An idea of the scope of the graduate instruction given at the University may be gained from the announcement of courses for the year 1891-'92, the last one issued at the time of this writing. It comprises the following courses of lectures:

By the professor of American archaeology and linguistics, lectures on the general philology of American languages; on the Algonquin, the Nahuatl, the Maya, and the Kechua groups; and on American archaeology and methods of study in archaeology.

By the professors of American history, lectures on the institutional and constitutional history of the United States from 1787 to 1892; and on the development of the State governments.

By the professors of botany, lectures on the classification of plants; on plant histology; and plant physiology.

By the professors of chemistry, lectures on the methods of proximate analysis of organic compounds; on synthetic methods of organic chemistry; on the industrial applications of chemistry; on chemical theory; on electrolysis and electrolytic methods; on thermo chemistry and on special topics in pure inorganic and analytical chemistry.

By the professor of comparative philology and Sanskrit, lectures on Sanskrit grammar; on the Çakuntāla and the Veda; on linguistics and comparative philology of the Indo-European languages, with special reference to phonetics; on phonetics and the principles of comparative grammar, with special reference to the forms of Greek and Latin; on Old Iranian grammar and selections from the Avesta; and (for students of Assyriology) on the old Persian text of the Behistūn Inscription.

By the lecturer on European history, lectures on France in the eighteenth century.

By the professor of experimental psychology, lectures on experimental psychology; and on comparative, social, and abnormal psychology.

By the professor of English, lectures on the English drama; on the principles of dramatic construction; on the history and theory of poetics; on the evolution of literary types.

By the professor of Germanic philology, lectures on Gothic phonology, grammar, and readings in *Ulfilas*.

By the professor of Greek, lectures on the Greek drama, and on the Greek orators; Greek syntax.

By the professor of Latin, selections from the letters and orations of Cicero; studies in the poetry of Virgil and Horace.

By the professor of law, a course on Roman law and jurisprudence.

By the professors of mathematics, lectures on modern higher algebra; on higher plane curves; on the theory of numbers; and on the theory of functions.

By the professors of philosophy, lectures on the history of modern philosophy, on ethics, and on general psychology.

By the professor of physics, lectures, and instruction in the physical laboratory.

By the professors of political economy and political science, lectures on the history of the theories of the distribution of wealth; and on the history and theories of the state.

By the professors of Semitic languages, the following courses: Elements of Arabic grammar, with reading and exercises; selected Suras from the Koran; prose and poetical pieces from the *Befrut Chrestomathy*; lectures on Arabic poetry; elements of Syriac grammar, with readings; Biblical Aramaic grammar, with readings from the book of Daniel; the Mishnaic Treatise of Sabbath; the *Pirkê Aboth*; elementary, intermediate, and advanced courses in Hebrew; a course of readings from the Hebrew prophets; the Moabite stone, the Siloam inscription, and selected Phœnician inscriptions from the *Corpus Inscriptionum Semiticarum*; Assyrian grammar; selected Babylonian texts; cursive reading of Assyrian texts, and interpretation of Ethiopic texts.

By the professors of zoölogy, courses on general biology; on invertebrate morphology; on comparative histology; comparative embryology; the mechanism of locomotion, and mammalian neurology and craniology.

These lectures are intended exclusively for graduates, but any courses delivered to undergraduates are open to matriculates in the Department of Philosophy who may desire to make use of them. I have entered rather minutely into the details of the organization of this new department at the University, and of the instruction it offers, though I am quite conscious that my paper will be found rather tedious. It has seemed to me undesirable to omit anything, for the reason that or-

ganized graduate instruction in liberal studies is only commencing to gain a foothold in our American universities, and its beginnings may, in the time to come, have no little historical interest. Until within a very few years, the graduate student in even our best equipped institutions found himself an exception falling under no recognized rule, and unprovided with systematic and regular instruction. The amount and quality of his work for the degree were determined arbitrarily, and might vary within unreasonably wide limits. This condition of things is gradually changing, and there is slowly coming to be a consensus of opinion on the proper value of the doctor's degree, and an effort on the part of the larger universities, at least, to furnish suitable teaching. It is to this movement that we must look for more efficient teachers in all grades of our schools, both public and private.

The growth of the department may be seen from the following statement of matriculates entered: Matriculated 1884-'85, 1; withdrew 1884-'85, 1; matriculated 1885-'86, 3; withdrew 1885-'86, 2; continued from 1885-'86, 1; matriculated 1886-'87, 4; withdrew 1886-'87, 2; continued from 1886-'87, 3; matriculated 1887-'88, 4; total at the close of 1887-'88, 7; matriculated 1888-'89, 8; withdrew 1888-'89, 2; received the degree 1888-'89, 1; total at the close of 1888-'89, 12; matriculated 1889-'90, 22; withdrew 1889-'90, 1; total at the close of 1889-'90, 33; matriculated, 1890-'91, 9; withdrew 1890-'91, 11; received the degree, 1890-'91, 6; total at the close of 1890-'91, 25; matriculated 1891-'92, 31; received the degree 1891-'92, 6; withdrew 18; total at the close of 1891-'92, 32.

There are at the time of this writing (October, 1892) 63 matriculates in the department. There are also 24 special students who are not candidates for the degree. Twelve of the matriculates and five of the special students are women.

It may be of interest to note the choice of major and minor subjects. Each matriculate, it will be remembered, chooses two minors. Some of those who have entered this year have not yet made a choice of minors, so the list is incomplete.

Major subjects.—American history, 2; botany, 5; chemistry, 10; English language and literature, 3; European history, 1; experimental psychology, 2; Greek language and literature, 2; Latin language and literature, 1; geology, 1; mathematics, 1; mineralogy, 1; philosophy, 13; political economy, 10; political science, 1; Semitic languages, 7; zoölogy, 3.

Minor subjects.—Botany, 7; chemistry, 6; comparative philology, 1; English, 4; European history, 7; experimental psychology, 10; geology, 3; Germanic philology, 1; Greek language and literature, 1; Latin language and literature, 1; mathematics, 1; mineralogy, 4; philosophy, 10; physics, 6; political economy, 7; political science, 10; romance, languages, and literature, 1; Semitic languages, 6; zoölogy, 5.

Special students—American history, 6; English, 2; European history,

2; mathematics, 1; philosophy, 15; physics, 1; political economy, 2; political science, 2; romance languages, 1; Semitic languages, 7; zoölogy, 2.

The degree of master of arts, heretofore conferred by the College faculty on presentation of a satisfactory thesis three years after the candidate has received his bachelor's degree, will, after the year 1892, be conferred by the faculty of philosophy, and only after at least one year's graduate study. At the stated meeting of the faculty in May, 1890, it was decided that the candidate for the master's degree should not be bound by the rules which determine the choice of studies in the case of candidates for the doctor's degree, but should make his own selection, subject only to the approval of the executive committee. This action was taken from the feeling that the object of the two courses is somewhat different. Those who enter the shorter course usually doing so rather for the purpose of general liberal culture than for that of becoming specialists.¹

In closing this paper I may be permitted to point out certain reasons why in my opinion it is the peculiar duty of our University in common with the few others situated in large cities to encourage advanced work in liberal studies. The advanced student has need of a kind of instruction, of collections of books, and of material for investigation, which are not necessary in undergraduate work. In a great city a university can readily obtain the services of eminent specialists, who could not be reached at all in a country town; it has open to it scientific and literary societies, public and in many cases private libraries, museums and scientific collections of all descriptions. Whatever be the resources of the University itself, they can not but be materially strengthened by such additions.

Moreover, in certain departments material for investigation can not readily be found away from a city.

I may illustrate the value of such helps by taking the single instance of the courses in experimental psychology lately established at this University. A student of psychology has open to him the courses delivered in the medical school on anatomy and physiology, he has opportunities for dissection; he may attend clinics at which nervous patients are treated; he has courses to choose from on mental pathology, and an opportunity to familiarize himself with the types of mental diseases by actual inspection of cases; he finds within easy reach asylums for the insane, and institutions for deaf-mutes and for the blind; he may study in the laboratory the reactions of various abnormal cases sent to the professor by physicians interested in the psychological aspects of their profession. These opportunities for special investigation could not be open to him in a small town.

¹ For course in Department of Music, see page 442.

CHAPTER XVIII.

THE SCHOOL OF AMERICAN HISTORY AND INSTITUTIONS.

It has been said that Franklin educated the people of the American colonies in the knowledge of their liberties. His utilitarian notions in education, formulated in his Plan for an English School, and in his Proposals for the Education of Youth in Pennsylvania, and illustrated in his life and writings and in the institutions founded according to his ideas, culminating in the foundation of the University of Pennsylvania, are always illustrative of the education which he considered was best adapted to such a country as ours. America in his day was agricultural, and I have already referred to the interest which Jefferson, Washington, and Franklin took in agricultural affairs, and in the provision for the study of chemistry, botany, fruit culture, viticulture, and the care of stock. Hamilton, whose life was in the city and among politicians, advocated a political education. In the correspondence between Hamilton and Washington much is said by each of them in support of the founding of a national university in which jurisprudence, politics, history, social science, and cognate subjects should be taught. Jefferson prescribed American history as one of the subjects indispensable in an American school. It may be concluded, then, from the public services and from the writings of these eminent men that they considered the principles of republican government and its history in this country as well worthy of a place in university study.

Philadelphia is identified with several of the epoch-making events in American history. There the Declaration of Independence was made; there the Constitution of the United States was framed by a company of unequaled legislators, and Benjamin Franklin was a member of the committee that drew the Declaration and of the convention that made the Constitution. Philadelphia is an American city in America; its material prosperity is to be attributed to the character of its inhabitants. Whether or not they have incorporated into their systems the spirit of Franklin's Way to Wealth, they have exemplified the enormous efficiency of Franklin's maxims in the accumulative productivity of wealth for which the city is famous. The city has always been national, in its sympathies, and at no time was this spirit more grandly displayed than during the civil war. Among the effects of the civil war of an educational character is the present interest in the history and instity,

tions of the United States. Previous to the war American history was scarcely considered worthy of a place in a college course; it was studied in meager outline in some of the public schools of the States, and in a few of the wealthier universities a brief course of lectures was delivered, usually by the president, on the Constitution of the United States. This course rarely covered more than twelve lectures. The civil war transformed America into a new nation, or, at least, awakened its people and the nations of the world to a clearer definition of the place of America in the modern world. The effect of this awakening was seen in the establishing of courses of study in American history (1870-1885) at Harvard, Yale, Columbia, Cornell, Princeton, Pennsylvania, Michigan, Syracuse, and Wisconsin. The subject was not made of sufficient importance to require the entire attention of a professor except in the University of Pennsylvania, where the historian, John Bach McMaster, was elected professor of American History in 1883. The lectures in these schools, except in Pennsylvania, were usually given by the professor of law, of history, of political science, or of English literature. These lectures were a brief summary of some important political events in the history of the country and a comment upon the text of the national Constitution.

The civil war was the most important economic event in modern American history. The nation, in the language of Lincoln, had a new birth of freedom, and this freedom was of the whole estate, political, constitutional, social, industrial, and literary. Thus it came to be seen that American history comprised a large group of essential interests: The history of the land, the method of its acquisition, its use, and the political geography of the public domain; the history of the people, the native races, emigration, and immigration; movements of population, transportation, labor and manufactures, inventions, social experiments; the people in politics, finance, education; the power of public opinion. A third element was that of the constitution of government in America, its origin, growth, and final definition; its relation to the governments of antiquity, of the middle ages, and of modern times; the nature of the colonial efforts in government; the causes leading to the independence of the United States, and the formation of State constitutions and of the Constitution of the United States; the nature and jurisdiction of local government; the problems of municipal government; the history of the judiciary, and the interpretation of government in acts of Congress, acts of State legislatures, and in the decisions of courts. Another phase of that history is the history of American legislation in the State legislatures and in Congress upon an almost bewildering variety of subjects; the history of the treaties of the nation; the legislation of courts upon important subjects, municipal legislation, and not least in importance, the history of that obsolete legislation, by which costly experiment so much that is admirable in our present laws was obtained.

Another element of American history is the history of literature in America. Franklin was fond of prophesying on the future greatness of the English language; that it would become an imperial tongue spoken by untold millions in this country, and that its literature would contain the productions of chiefest value to the human mind. But not alone has the English tongue been spoken in America; there the Spanish tongue divides with the English in importance, for the language of South America is chiefly Spanish. This large group of essential interests to the people, their history in full, is a subject of importance to those who would know what is best for such a country as ours. If American institutions are worth having they are worth understanding; if American history is worth making it is worth reading.

It is not strange, then, that a school founded for the special study of American history and institutions should be created in some American university at some time not long after the American civil war; that such a school should be founded in an institution fairly equipped to administer wisely the provisions of such a foundation, and in such a place as by its historical associations, its liberal facilities, and its nearness to the national capital and to the great municipal centers of the country, would enable students to avail themselves of an adequate historical equipment. Under these controlling conditions the School of American History and Institutions was founded in the University of Pennsylvania in 1891.¹

¹ The school was established in 1891 by the trustees of the university as the result of the coöperative labors of William Pepper, M.D., LL.D., provost of the university; Joseph D. Potts, John B. Gest, and Hon. S. W. Pennypacker, of the board of trustees; Charles Elmer Bushnell, Ferdinand J. Dreer, Hon. Thomas Cochran, Joseph G. Rosengarten, Richard L. Austin, John Bach McMaster, and Francis Newton Thorpe.

The school was instituted by Prof. Thorpe, and the idea of such a school was formulated by him in 1886 when he was a fellow in history and political science in the university. Six years before, while at Oxford University, the idea of such a school had occurred to him. While fellow in the university his special studies were with Prof. McMaster, at that time professor of American History in the Wharton School. During the years 1885-91 a library essential to the work of the school was collected. At present it comprises about 14,000 volumes, classified as follows:

LIBRARY OF PUBLIC DOCUMENTS.

(a) National documents: A practically complete legislative record of the Government of the United States, consisting of the American Archives; the Annals of Congress, 1789-1822; the Congressional Debates, 1822-1837; the Congressional Globe, 1833-1873; the Congressional Record, 1873-1891; the Journal of Congress, 1789-1891; the American State Papers, 1789-1828; a practically complete set of the Reports of Committees, Executive Documents, Miscellaneous Documents of both Houses from the beginning of the National Government to the Fifty-second Congress.

(b) State documents: Journals of the House and Senate; debates and proceedings of the State legislatures; departmental reports (agriculture, education, railroads, labor, transportation, insurance, prisons, etc.).

(c) Canadian Public Documents, 1843-1890.

(d) Municipal Documents (police, fire, water, charities, etc., hospitals).

Philadelphia has such historical associations as make it the fit place for the location of such a school. The historical material in the libraries of New York, Baltimore, Albany, Worcester, Boston, Harrisburg, and Washington are readily accessible. The faculty of the Wharton School of Finance and Economy made possible the study of economic and financial subjects comprised in the study of American history and institutions. The law school afforded opportunity for the study of jurisprudence. Finally, it was possible to gather a faculty for the teaching of American history, institutional and constitutional; the historian of "The People of the United States" was transferred from the Wharton school to the chair of American History in the newly established school; the chair of American Constitutional History was created and filled; courses of study were arranged and the school entered upon its work October 1, 1892.

It is the first school of its kind. Its courses are taken by graduates and undergraduates. Its graduate classes have the use of an ample library equipment, selected with care. In order to make the opportunities of the school as useful as possible there is a Saturday class in

(c) Corporation documents: Reports of turnpikes, railroads, canals, insurance companies, etc.

LIBRARY OF THE LAWS.

(a) National: United States Statutes at Large; reports of Supreme Courts; reports of Court of Claims; Digest of Federal Decisions.

(b) State Laws: Laws of each State and Territory, 1775-1890.

(c) Municipal Law (the ordinances of seventy-five American cities have been collected).

(d) Constitutional Law: Constitutions of each State; Constitution of foreign States; Treatises in Constitutional Law.

The John Alexander Jameson Library of American Conventions; the Journals, Proceedings, Debates and many documents pertaining to them.

The Forster Papers and MSS., 1786-1834, pertaining to the early history of the Northwest.

The Robert Purvis Library of Anti-slavery Literature.

American Biography and History.

The History of Education in America.

Collections have been begun in these subjects: American Newspapers; American Magazines; Mines and Mining; Silk; Iron and Steel; Sugar; Wool; Cotton; and other business and manufacturing interests. Also, on Woman Suffrage; the Temperance Movement in America; Transportation; the History of the Society of Friends.

LIBRARY FACILITIES IN PHILADELPHIA.

The aggregate library facilities of the city include over 750,000 volumes, distributed in the Philadelphia Library, founded by Benjamin Franklin, and rich in public documents; in the Mercantile Library, having large collections of Americana; and the Library of the Pennsylvania Historical Society, all of which are accessible to students. In the University Library, in addition to the special Library of the School of American History, are the Colwell, Carey and Wharton collections in political economy, in social and political science. The University Law Libraries and the Hirst Free Law Library afford every opportunity to consult the Law Reports of the several States and treatises on the law.

American History and Government, for the convenience of teachers in Philadelphia, which is largely attended.

For this class Prof. McMaster's courses cover the Political and Economical History of the United States. The courses follow an outline prepared specially for the purpose. Maps are drawn and papers are prepared and discussed at the class, and the methods of historical study are made an important element.

Prof. Thorpe's courses deal with the development of Government in America, local government, State government, national government, discussions of important questions involved in the growth of American civil institutions. Papers are prepared and discussed before the class. A special outline is arranged for its convenience.

Through the generosity of Mr. Charles Elmer Bushnell, of Philadelphia, the school is enabled to offer a free scholarship for a period of five years to graduates of the Central High School of Pittsburg, Pa. The scholarship is granted each year, but holders of it are eligible to reappointment.

The founder of the school was imbued with the same notion to which Franklin so often gave utterance: that education in American universities and colleges should prepare "for such a country as ours." The efficient coöperation realized in the establishing of this department of the University of Pennsylvania suggests what may be done elsewhere. Every institution of learning in America should provide instruction in the principles of American government and in American history.¹ It is encouraging now to believe that no American university will neglect to create a chair of American history, and, as far as possible, provide adequate library facilities for the study of the whole subject. The subject is comprehensive, interesting, and popular. No better proof of this can be given than the record of the university extension movement in this country. The American Society for the Extension of University Teaching, of Philadelphia, has had more requests for courses of lectures on American history than on any other subject. The substantial interest in the subject which this request implies is a sufficient foundation for the adequate support of such a school as this in the University of Pennsylvania.

¹ By American history I mean not merely military or political history, but the history of American people in all their interests: industrial, social, political, literary, financial, religious, military, economic, and constitutional. Since 1880 the wealthy universities have founded chairs of American history, and separated the subject from a discordant mass of mathematics, language, European history, literature, political economy, and law. The changes made during the last few years may better be understood by comparing the study of American history at present with that study in 1885-86. At that time I made a brief comparative study of the work offered in the leading American universities, which was republished by the Bureau of Education under the title of "The Study of History in American Colleges and Universities." It was edited by Dr. H. B. Adams, and comprises the eighth chapter of the book. (*The Study of History in American Colleges and Universities*; Bureau of Education, Washington, 1887.)

CHAPTER XIX.

THE LABORATORY OF HYGIENE.

In 1889 Mr. Henry C. Lea offered to provide the means for the construction of a building for a laboratory of hygiene for the University of Pennsylvania provided that the necessary funds should be raised to equip and endow it, that hygiene should be made a compulsory study in certain courses of the University, and that as soon as possible a four-year course in the Medical Department should be established. This offer having been accepted, and the necessary preliminary conditions complied with, the preparation of the plans for the new building was at once commenced under the direction of Dr. J. S. Billings, and these plans, with accompanying specifications, having been approved, building contracts were signed. The work of construction was begun in the spring of 1891, under the supervision of the architects, Messrs. Collins and Autenrieth, and was completed in January, 1892. The building was formally opened, with appropriate exercises, February 22, 1892.

The laboratory is located on the southeast corner of Thirty-fourth and Locust streets, on a plot of ground set apart for that purpose measuring 147 by 182 feet. The main front is on Thirty fourth street facing to the west. The building is somewhat L-shaped, having an external front of 91 feet 9 inches on Thirty-fourth street, and of 113 feet 9 inches on Locust street, and is two stories high with a basement. It is constructed of brick on a base of Conshohocken stone, with sparing use of molded brick and terra cotta for ornamentation.

On the main floor is a lecture room 45 feet 5 inches by 26 feet, with a preparing room 15 feet 10 inches by 10 feet 10 inches, and a museum room 15 feet 10 inches by 18 feet adjacent, a chemical laboratory 44 by 20 feet with working space for 18 students, five special research rooms, each about 15 by 18 feet, a drafting room, janitor's office, and laboratories.

On the second floor is a bacteriological laboratory 60 by 20 feet, giving working space for 16 students, four research rooms, a photograph and photomicrograph set of rooms, a library 16 by 17 feet, a directors' room with small laboratory adjacent, a supplies room, lavatory, etc.

In the basement are workshops, janitor's rooms, combustion room, storeroom, etc. On the southeast corner is a small animal house entirely separated from the main building.

The bacteriological and chemical laboratories and the majority of the research rooms are on the north front, and are lighted by numerous and high windows.

The building is heated by steam, and special arrangements have been made for ventilation, so as to secure not only an ample supply of pure air in every room, but to permit of experimental work and practical demonstrations in this important branch of sanitation. The fittings of the laboratories and research rooms include hoods, sinks, work tables, etc., with ample water and gas supplies, live steam, etc. Everything about the building is plain but substantial; the object has been to construct and properly equip a thoroughly practical working laboratory, and it is believed that this has been secured.

The director of the laboratory is Dr. John S. Billings and the first assistant is Dr. A. C. Abbott, recently the assistant in bacteriology and hygiene in the Johns Hopkins Hospital at Baltimore. The assistant in bacteriology is Dr. Albert A. Ghriskey, and the assistant in chemistry is Dr. H. S. Warwick.

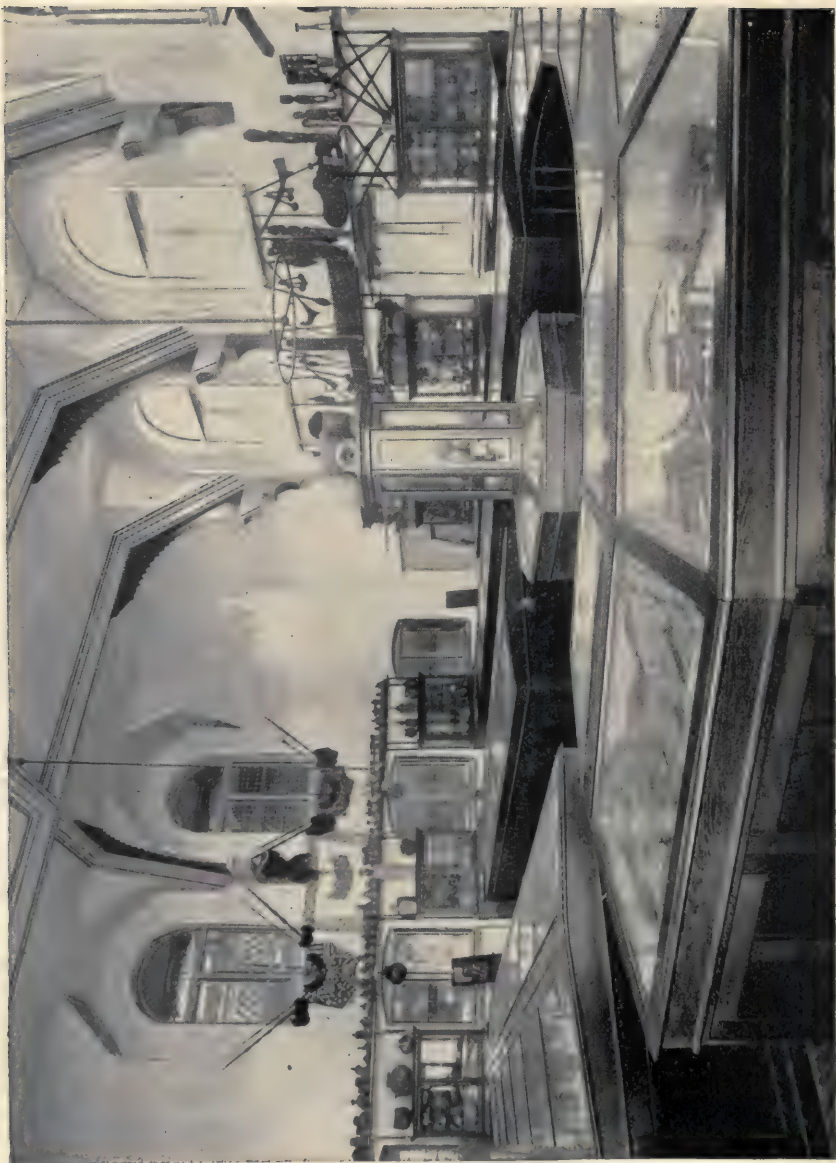
The work of the laboratory and its staff includes teaching of undergraduates, instruction of post-graduates, and original research. A course of lectures and demonstrations is given to the undergraduates in the arts and technological departments of the University and a more extended course to the students of the Medical Department.

Special courses, including lectures and practical laboratory work, are provided in practical hygiene with reference to the giving a certificate of qualification to perform the duties of a health officer; also in bacteriology, in food analysis, etc.

Advanced original research in matters pertaining to the causation of disease and the preservation of health will be a special object of this institution. The Thomas A. Scott fellowship in the Institute of Hygiene has been founded, and generously endowed by Mrs. Scott with the sum of \$10,000, the income from which is to be used to pay the salary of the fellowship.







ARCHAEOLOGICAL MUSEUM.

CHAPTER XX.

THE DEPARTMENT OF ARCHÆOLOGY.

The study of the natural sciences is essentially objective, and hence in teaching them it is indispensable that the instructor have at his command collections of objects to illustrate the facts and principles he brings forward. This has long been recognized by the University, and in its medical, biological, and chemical departments it has gathered ample stores of specimens for the use of instructors and students. It is only quite recently, however, that attention has been directed to securing objects relating to ethnography, archæology, and palæontology.

The nucleus of this museum was the Assyrian antiquities obtained by the Babylonian Exploring Expedition, which are fully described on another page. In the autumn of 1889 it was decided to give this feature of a museum of illustrative objects the prominence merited by its importance, and to organize branches including the whole subject of the past of the race, and also that of palæontology. A large room was set apart for this purpose in the main building of the University, a portion of the valuable collection of Maxwell Sommerville, esq., was installed in it, and the branch of American archæology was provided for by the appointment of Dr. Charles C. Abbott as curator.

The scope of the collections is intended to embrace not only the regions thus intimated, but to take in the whole field of ethnography and archæology. For this reason its officers are in relation to the University Archæological Association and expect to obtain rich results from the Egyptian and Assyrian, as well as the American exploration funds. Indeed, already an abundant harvest of valuable specimens has been sent in by these various bodies, as will be seen by a brief reference to the contents of the cases as they were in April, 1891, only sixteen months after the organization of the museum.

AMERICAN SECTION.

In the Department of American Archæology the curator has aimed to obtain examples of the weapons, utensils, domestic implements, ornaments, objects of worship, as idols, fetishes, amulets, etc., in use now or in other ages by the American Indians of any part of the continent. Appreciating how much more valuable are objects collected by officers of the museum or under their direction than those of which the history and exact locality are less clearly ascertained, efforts have been made to

build up the museum as much as practicable by original explorations. These have been prosecuted in the valley of the Delaware and at various other points in the States of New Jersey and Pennsylvania with gratifying results.

From prehistoric ash-pits near Trenton, N. J., have been derived large numbers of bone implements, broken or worn out, that had been discarded, rude stone implements, fragments of pottery, and the bones of such animals as were used for food or other purposes. The deer bones are greatly in excess, but those of the bear, elk, raccoon, wolf, fox, skunk, beaver, and small rodents also occur. Also bones of the sturgeon, turtles, and various fishes. Unio shells, too, proved of frequent occurrence. Near the ash-pits, in several instances burials were discovered and skeletons exhumed. The crania vary considerably in their character, but all are essentially "Indian." The shell-heaps along the seacoast of New Jersey have also been examined, and more particularly in Atlantic County, and much valuable material obtained. From the celebrated Flint Ridge quarries in Licking County, Ohio, a superb series of stone hammers, from the largest to the most diminutive, masses of flint, cones, plates, refuse pieces, and finished implements, as spearheads, arrow points, perforators, scrapers, and drills, have been obtained, and, collectively, beautifully illustrate the flint-chipping industry at that locality.

A number of additions have also been made, owing to the kindness of friends of the institution, who have either given or deposited collections of authentic remains from different points. In a few instances purchases have been effected through the liberality of intelligent citizens when objects of especial merit have been brought to the notice of the curator. Thus a remarkable collection of copper implements from a well-localized village site in Wisconsin was bought and added to the treasures of the museum. It is, in some respects, the most interesting set of copper specimens yet obtained within the area of the United States.

In the arrangement of the American branch of the museum the plan adopted will combine as far as possible the advantages of both the technical and geographical systems. When a sufficient number of specimens permit, they will be so arranged as to illustrate in one series the developments of the arts of life, and in another to portray the general condition of culture of the tribe from whom they are derived.

Along with such objects of art, the effort has been steadily made to secure anthropologic specimens, such as crania, skeletons, photographs, and measurements, some typical skulls from graves in New Jersey, attributable to the Lenape Indians, are among objects collected by officers of the museum during the past winter.

By the 1st of April, 1891, there were nearly ten thousand entries in the American department of the museum, representing about thirty thousand objects, besides material which was still on hand, but at that date not entered in the catalogue.

In this list the United States was represented by objects, mostly in

stone, from thirty-six States and six Territories; others were from Canada and the West Indies, while the Pacific islands are fairly represented by specimens from New Zealand, the Fijian group, the Samoan Islands, the New Hebrides, the Solomon islands, Torres Strait, and Australia. From Italy and Great Britain small but useful prehistoric series have been presented by local friends of the institution. Several boxes of remains from the Swiss lake dwellings, and others illustrating the bronze age in central Europe, are waiting to be catalogued and displayed on the shelves.

EGYPTIAN SECTION.

The Egyptian section, by coöperating with the Egypt Exploration Fund Association, through whose organized effort since the year 1883 many important sites in the Delta have been explored, has secured for the museum a number of objects of peculiar interest.

Not less important is the collection procured through Mr. W. Flinders Petrie, which contains carefully selected series of representative specimens found by himself and accurately described in his works.

The value of these collections is not only derived from the immense antiquity of the civilization which they represent, but is due principally to the light thrown by them upon the gradual development of human culture and upon the share which the civilizations of the remote past have had in preparing the evolution of our own.

These are not mere relics of a bygone age; they form part of an ethnological series in which each object has a well-defined place, and illustrates some special stage in the development of human arts and industries or suggests some historical vicissitude.

The men intrusted with the excavations at Pi-tum, Zoan Tanis, Tell Dejeenah, Tel Nebeshah, Naukratis, Bubastis, Gurob, Kahun, Hawara, etc., all of which sites are represented in the collection, are well known men of science who have conducted the work in a thorough and scholarly manner.

Alive to the requirements of modern methods, they have noted every detail, leaving literally no stone unturned in their effort to establish the history of every object, however trifling, which has been recovered by them.

It is evident that, for purposes of study, a small collection obtained under such conditions is immeasurably more useful than a more extensive one picked up in or out of Egypt by dealers or travelers and the origin of which is often unknown and generally doubtful.

There is here no room for deceit of any kind. We not only know the precise locality from which each object was derived, but in many cases we can pick out on a plan of the ruined city the very house of its former owner, and even occasionally the latter's name or profession are known to us.

By singular good fortune Mr. Petrie has been able to identify certain

sites the historical horizon of which was confined within narrow limits, the cities whose ruins these mounds inclose having through some political or other accident, such as occur in the annals of every nation, sprung into importance at a given time, and then, after a century or more, the cause of their fictitious prosperity being removed, having sunk back once more into comparative obscurity.

The objects obtained from such sites are invaluable as specimens of the state of culture reached at a given period, and materially help to define with accuracy the stages through which the arts and industries, indeed even the fashions, passed in the course of milleniums.

A collection such as that now in the Egyptian Department of the museum of the University of Pennsylvania may therefore be considered, as far as it goes, typical of what a museum should be if intended, as this is, for educational purposes, and to illustrate the studies of archæology and ethnology.

Among the more striking numbers of the collection are our granite slabs, once part of the wall of the great hall of festivals, which was added by King Osorkon II to the Temple of Bubastis, built by his predecessor, Osorkon I, in honor of the eponymous deity of the place, the cat-headed Bast (ab. 900 B. C.). On these massive blocks of syenite are represented, carved in intaglio, sections of a great religious procession organized in celebration of a 50-years' festival of Amen, which fell in the twenty-second year of this reign.

These and the companion blocks, now distributed in various museums of Europe and America, have become famous throughout the learned world, owing not only to the light thrown upon points of contemporary history by the inscriptions of the great temple of which they formed a part, but also by the presence in the procession of three dwarf chieftains walking in the line, each of whom holds a staff of command in his hand, and who are introduced by Egyptian interpreters as "chiefs." This interesting block is at the museum of the University of Pennsylvania, as well as one giving a portrait of King Osorkon himself, and another representing the gods Atum and Shu in bold, clear intaglio.

From Illahun (twelfth dynasty, about 2500 B. C.) is a very fine statue of a scribe, and a number of fragments of painted limestone bas-reliefs of exquisite workmanship, from the shrine of the Princess Nofer-Atum, daughter of King Usertesen II.

To students of history, however, the most interesting of the larger monuments are two limestone fragments from Gurob, which furnish a specimen of Egyptian art towards the end of the eighteenth dynasty; *i. e.*, during the period when Asiatic influence is shown by the Tell el Amarna tablets to have been strongest in Egypt. This historical fact may easily be appreciated by a careful examination of these pieces: One is a fine head of a lioness, treated in bold, architectural style, and far more "alive" than is usual in pure Egyptian art. This head has justly been thought worthy of particular mention by Mr. Petrie in some

of his published articles on the subject of his work. The other monument is a fragment of a limestone bas-relief of the time of Khunaten (Amen-hotep IV), about 1450 B. C., in which the sun disk is depicted in true Mesopotamian style as a rosette, from which rays depend. The whole treatment of this piece of sculpture differs from the conventional artistic methods of other Egyptian epochs.

The industrial arts are represented by small but absolutely authentic and classified series of objects covering a vast period of time. Among these a series of copper and bronze implements from the twelfth dynasty, about 2500 B. C., down to Ptolemaic times offers an opportunity for the accurate testing of ancient metals, of which it is hoped that advantage will be taken.

Similar series of glass and porcelain-glaze beads cover the same period. A very handsome bowl of turquoise blue porcelain-glaze, characteristic of the eighteenth or nineteenth dynasty (1650–1200 B. C.), decorated with a border of lotus-buds traced in dark outline, and in the center with a free-drawn representation of a girl poling a boat laden with fowls—has been mentioned by Mr. Petrie in one of his articles as a fine specimen of industrial art.

The series of pottery is very interesting. The potsherds from Tel-Defenneh and Naukratis are more than usually instructive. These sites were Greek settlements founded in the seventh century B. C., and Psammetichus I. established at Daphnae the camp of his Ionian and Carian mercenary troops. Political events narrated by Herodotus closed Daphnae to foreign trade about one century after the Greek camp had attracted Greek colonists, whilst Naukratis, on the contrary, became then the great emporium of Egypt, and indeed acquired the monopoly of Egyptian commerce with the Mediterranean. The painted vases of Greek and mixed forms recovered by Mr. Petrie at Daphnae can therefore be assigned an exact date B. C., 665–565, and it is interesting to find the events of those troublous times reflected, as it were, upon these potsherds in the various decorative designs borrowed from widely different sources, and in the adaptation of which the Greek artists established upon Egyptian soil exercised their ingenuity. The contributions of Egypt and of Mesopotamia, treated singly or blended together and idealized by the Greeks, are plainly discernible, and the handsome pottery of Naukratis tells a similar story and completes that of Daphnae; it takes up the thread and carries it down to our era.

The sepulchral series is also well represented by sepulchral amulets and scarabs, fine ushabtis of various periods—mummy wrappings inscribed with chapters of the Book of the Dead, and mummy-cases and cartonnages of different epochs—among these a fine portrait-panel of a woman of Roman times, painted in encaustic and found at Hawara, is still beautifully fresh, notwithstanding the 1700 years which have elapsed since it was buried.

•A valuable collection has lately been presented to the Museum by Mrs. E. W. Lehman. It was gathered together in 1858 in the neighbor-

hood of Ghizeh, Sakkarah, and Karnak, and includes not only mummified human remains, but mummied ibises and crocodiles. Several pieces of bread from food offerings made to the dead, a number of scarabs, not only the engraved ones used by the Egyptians as amulets or seals, but the real beetles which they revered as a symbol of immortality through transformation.

A piece of the "petrified woods," near Cairo, forms also an interesting feature of this collection, of which, however, the gem is a fragment of a fine limestone bas-relief from the Serapeum of Memphis, fresh in color and of excellent workmanship, representing Egyptians in the act of poling a boat.

Several good bronze statuettes of gods complete what is certainly a most valuable contribution to the Egyptian Department.

ASSYRIAN SECTION.

The Assyrian collection presents a large variety of objects collected in the valley of the Euphrates, and illustrating the ancient civilization of the Babylonian and Assyrian dynasties. The number of cuneiform tablets is large, and the majority of them have not yet been read, thus offering fresh subjects of study to the specialist in this field. The greater number of them appear to be "contract tablets," but all deserve careful transcription, as even these examples of ordinary business documents frequently offer new or corroborative forms which help to explain records of greater importance.

The explorations of Niffir, which have been carried on by the Assyrian Exploration Commission attached to the University, are represented by a large relief of that ancient site, illustrating the character and extent of the excavations and the appearance of the surrounding country. The extensive collections obtained by the labors of this commission as conducted under the efficient administration of the Rev. John P. Peters, will, it is expected, soon be added to this portion of the Museum, which will then rival any of its scope in the United States.

GLYPHTIC COLLECTION.

The collection of Maxwell Sommerville, esq., to which reference has been made, merits especial attention both from the antiquary and the artist. It consists of a number of amulets drawn from all ages and all parts of the world and throwing a curious light on the religious or superstitious sentiments of many peoples. The field thus entered is a singularly extensive one, the belief in charms or "lucky stones" belonging to the earliest, as it also does to the latest, stadia of human culture. It is frequently seen in the social life of our own day and is quite familiar to students of contemporary folk lore; hence the peculiar value of this collection.

His collection includes many engraved gems, and is unique from the fact that it has one peculiarly interesting feature not characterizing most known glyptic cabinets. The author and collector has arranged his speci-

mens in an order classifying all the epochs, representing the qualities of glyptic execution by what may be termed a geometrical progression commencing with the rudest and earliest known examples of the work of incisori; the sculptured scarabaei of the Egyptians, the seals and seal cylinders of the Babylonians and the Assyrians, the exquisite intaglios and cameos of the first and purely Greek epoch, the Græco-Roman, the Roman, the Abraxas and other Gnostic gems, the Christian, the Byzantine, the decline in gem-engraving and its degeneracy in the Mediæval epoch, the first Renaissance, the subsequent decline, and finally the wonderful class of gem artists who appeared and flourished in the close of the eighteenth century.

Mr. Sommerville's collection is not one only of curious engraved stones, but, being thus methodically arranged, represents the glyptic branch of art industry throughout the entire history of the world, displaying various grades of civilization always exemplified by art culture.

It contains the most perfect specimens of the better epochs and the greater incisori, charming in their masterly execution, and interesting from their beauty and the sentiment portrayed. It also to a large extent represents those gems rude in execution, coarse and curious in design, embodying the grossest superstition of ancient times, coupled with a mass of token stones representing scenes and incidents of the events of the Christian epoch, and thereon exhibiting the religious fervor of the centuries following the birth and acceptance of Christ, and the coeval mysticisms of those who really knew not in what they believed.

It would not be possible in this connection to do justice to this admirable collection, all of which is admirably displayed and catalogued; but some idea of its riches may be formed from the fact that it numbers over 1,500 specimens, many of them equally valuable for their material as for the work which is upon them. Among these are 500 Greek and Roman cameos, deftly incised on chalcedony, onyx, jasper, sardonyx, agate, alabaster, and other precious stones; there are more than 30 Assyrian and Babylonian cylinders, with inscriptions in the characteristic cuneiform writing; large numbers of Persian, Etruscan, Sassanian, and Byzantine gems, with mysterious figures; gold and silver rings, bearing hieratic devices; gems of the Gnostics, with their occult and significant devices; Abraxas from the early centuries of Christianity, and relics of mediæval superstition impressed upon objects of personal adornment. Added to these are many curious small idols, the household gods of various nations, especially of the Hindoos and Chinese.

In order that the public might be profited as much as possible by these interesting collections, a system of afternoon conferences was inaugurated during the winter, for which cards were distributed to those believed to be appreciative of such studies. An informal lecture was delivered by one or another officer of the museum and the meaning of the various objects pointed out in familiar language.

CHAPTER XXI.

THE GRADUATE DEPARTMENT FOR WOMEN.

When the Academy and Charitable School, in the Province of Pennsylvania, was founded in 1751 by Franklin and others, the Charitable School consisted of two departments, one for boys and the other for girls. While the academy grew into the College and this afterwards into the University, the continuous corporation steadily maintained the charitable schools until June 5, 1877, when a judicial opinion was given that under the modern public school system there was no longer a need for their maintenance and that the obligations of the trusts concerned would be fully met by the liberal policy of the trustees in the matter of free scholarships for deserving young men, and by the free admission of young women to certain lectures in the college department. In 1879 Mrs. Bloomfield H. Moore presented to the University as a memorial to her deceased husband \$10,000, the income of which was to be used to enable women who were or desired to become teachers, not exceeding six at any one time, to avail themselves of such courses as might be open to them in the University. At that time the course in music was the only one formally open to them, but without definite system a few were permitted to attend certain lectures and work in some of the laboratories without being matriculated as regular or special students. At various times within the last fifteen years vigorous efforts were made to secure the admission of women to the undergraduate courses on the same footing as men, and the subject was brought before the college faculty and the trustees in such a manner as to demand careful consideration and decision. At one time the faculty by a bare majority favored the so-called coeducational movement, but the trustees, the ultimate authority, after the most careful consideration decided that the undergraduate courses could not be opened to women until endowments and equipments were provided for a separate college. Just at this time the question took a new form through the opportune generosity of Col. Joseph M. Bennett, who addressed the following letter to the provost:

1112 GIRARD STREET.

TO WILLIAM PEPPER, M. D.,

Provost of the University of Pennsylvania:

DEAR SIR: I hereby donate to the trustees of the University of Pennsylvania the two adjoining properties on the southeast corner of Thirty-fourth and Walnut streets, clear of incumbrances, to be occupied for the purpose of a college for women

in connection with said University, said college to be under the direction of a Board of Managers to be appointed by the Board of Trustees.

I do this because I am desirous of promoting the higher education of women, and yet recognize the difficulties connected with complete coeducation.

Yours, truly,

JOS. M. BENNETT.

November 2, 1889.

These two properties, easily converted into one capacious hall of residence, are worth some \$30,000, and the trustees at once saw that there was an opportunity of work for women of a character entirely within the policy and resources of the University. The Faculty of Philosophy had by this time developed its lines of university as distinguished from college studies, and was prepared to offer an unusually large choice of graduate studies leading to the degree of Doctor of Philosophy. The obstructions and difficulties which beset the admission of women to the undergraduate courses did not obtain here. The opportunities for undergraduate studies elsewhere were quite ample for the local demand, while the facilities and opportunities here offered were but rarely attainable. It was therefore decided to establish a Post-graduate Department for Women, to be opened so soon as eight fellowships should be open to students and sufficient progress made in securing an endowment. In 1890 an organization was effected on a plan which has been found useful in several other departments of the University; that is, of enlisting in the work earnest men and women who are not of the body corporate, but to whom as managers a large authority is delegated for the practical government of the department. A board of managers was created, of whom seven are trustees of the University, one the dean of the department, and eleven women of recognized force and ability who are deeply interested in the higher education of their sex. The provost is, as always, the president of this board. One of the managers, Miss Ida Wood, was made secretary, and practically the executive officer of the department.

By order of the trustees, the Faculty of Philosophy was assigned to the department as its faculty, and thus the whole scope of post-graduate instruction afforded by the University, and complete eligibility to the degrees of Master of Arts, Master of Science, or Doctor of Philosophy were thrown open to the students of this department on precisely the same terms as to men in the Department of Philosophy. To be a candidate for either of these degrees, the student must be a baccalaureate graduate, either in Arts, or Science, of an American College whose degrees are accepted by the University as equivalent to its own, or must satisfy a committee of the faculty, by examination or otherwise, that she possesses an equivalent preparation for the advanced work of the department. At least two years must be spent in graduate studies, one of which must be in residence at this University, but the work is such that generally a longer period than two years will be required to prepare for the examinations in three subjects which are necessary to

obtaining a degree. Special students, who are not candidates for a degree, are admitted and allowed to pursue such courses as may be approved by the faculty; and elementary instruction is given in those branches which are either not included or inadequately treated in the usual undergraduate courses of American colleges.

A reference to the chapter in this volume on the Department of Philosophy will enable the reader to see what an extensive curriculum of advanced studies is open to the students of this department. The hall for women is an admirable residence, with every homelike feature. It has been comfortably and even handsomely furnished, through the zealous efforts of the women managers. Col. Bennett has supplemented his original generous gift by the further donation of \$15,000 for endowment, Provost Pepper has endowed one fellowship to be called the Frances Sergeant Pepper Fellowship, and other generous donors have made it possible to offer eight fellowships, which entitle the holder to all the privileges of tuition and residence. Unremitting efforts are being made to increase the endowment to a sum adequate to the full needs of the department, and it is hoped that in a very few years it will be placed on such a footing as to enable it to meet, in the most liberal way, the increasing demand for the higher education of women. The women's hall was opened with appropriate ceremonies on May 4, 1892. Addresses were made by the venerable William H. Furness, D. D.; by President James MacAlister, LL. D., of the Drexel Institute; by Dean M. Carey Thomas, PH. D., of Bryan Mawr College, and by Provost William Pepper. The large and representative audience which listened to these addresses gave evidence of the deep interest taken by the community in this latest extension of the work of the University, and gave assurance to the trustees and managers that their conservative, and yet broad and progressive, policy would meet with a full measure of public approval and support.

CHAPTER XXII.

THE UNIVERSITY LIBRARIES.¹

The beginnings of the University library date back to the beginnings of the University itself, and its growth has steadily followed the unfolding of the institution. At the very first recorded meeting of the trustees of the Philadelphia Academy the subject was introduced, and shortly thereafter a sum of £100 was placed at the disposal of a committee, of which Benjamin Franklin was chairman, to be expended in the purchase of "Latin and Greek authors, maps, drafts, and instruments." At the same time a general appeal was issued for gifts of books, which met with a hearty response. The first gifts recorded are those of Benjamin Franklin and Lewis Evans, in 1750. During the following years several further grants for the library were made by the trustees, and by the year 1774 the library had grown to sufficient dimensions to warrant the faculty in making a request of the trustees for the appointment of a librarian. It does not appear, however, that this was done until 1791. The income of the library during all this time and long afterwards was a very uncertain one. There was no special endowment fund, and outside of the special appropriations made from time to time as the urgent needs of the institution dictated, and gifts, there was only the bachelor's fee of 15s. and the master's fee of £1 (afterwards reduced to 15s.), to depend upon, which by resolution of the trustees, in 1757, was set aside for the benefit of the library. To this in 1768 there was added a tax of \$1, levied on medical students for the use of the library. Mention perhaps should also be made of a fine of 1s. imposed upon trustees absent from the meeting, to be used in the purchase of "books and paper" for scholars in the Charity School; but although there is an actual record on May 25, 1754, of such a fine having been paid, and which was duly expended in "paper, quills, and books," the law was presumably more honored in the breach than in the observance. In 1784 the library received a notable gift from "His most Christian Majesty" Louis XVI, who, at the instance of the Comte DeVergennes and the Marquis de Chastelux, forwarded to the University 100 volumes of miscellaneous scientific and literary works, for the

¹I wish to acknowledge my indebtedness to Mr. Gregory B. Keen, librarian of the University, who kindly placed at my disposal most of the material for this article, which he had been at pains to gather from the records of the Board of Trustees.

most part in French. By 1786 the library appeared to have grown sufficiently to warrant the preparation of a catalogue, of which two copies were ordered to be furnished, one for the faculty and students, and the other to be kept by the secretary of the board. If we add that in 1788 Francis Gladwin, esq., residing in the East Indies, presented to the library its first volumes on Oriental literature and philology, we shall have exhausted the account of the very humble beginnings of the University's collections.

The second period in the history of the library begins with the year 1791 when the amalgamation of the College with the University (organized in 1779) took place. The new institution soon took advantage of the State patronage under which it was placed to petition the legislature for an appropriation to enlarge the "library and the philosophical apparatus." In 1792 an address to that effect was presented to the house of representatives who referred it to a "grand committee" with which action the measure is lost sight of, so far as the University is concerned, and judging from the fact that in 1809 the trustees made an appropriation of \$600 for the library, it would seem that the hope of receiving State aid was abandoned.

In 1811, under the new rules and statutes, which are an indication of the University's steady growth, provision was made among the standing committees for a library committee of two, to whom was intrusted also the philosophical apparatus of the institution. The number was subsequently (in 1818) increased to three, but there is an almost constant vacillation between three and four members until in 1855, it was, by resolution, fixed at five. A few years later the University received by bequest the books of Dr. McDowell (provost from 1807 to 1810), and an important step in advance was taken in 1822 when, in addition to the further appropriations for the purchase of books and apparatus, it was decided hereafter to grant such annual amounts as the funds of the University may warrant for enlarging the library. The library committee was also instructed to adopt such measures as they deemed expedient to invite and encourage donations of books, and at the same time initiatory action was taken looking to the publication of a catalogue. Several years, however, passed before the project was carried out, and it was not until 1829 that the catalogue, prepared under the direction of S. Peter Duponceau, a member of the library committee, with the aid of a "foreign gentleman," whose name does not appear on the records, at length appeared. Meanwhile, the number of books had increased steadily through purchases regularly made as well as through donations, though judging from the statement, which was apparently regarded as somewhat extraordinary, that in 1824 105 volumes had been added to the shelves, the growth would be regarded as almost painfully slow at the present time. Notable among the donations at this period was a complete set of Waite's State Papers from the Department of State.



In the beginning of 1832 the number of volumes reported to be in the library was 1,670. During the following twenty years nothing of any note occurred. Donations of books, more especially of official documents, were received in larger numbers than before, and by the year 1855 the need of appointing a special librarian made itself felt. For some time past the books had been in the charge of the provost, but in the year mentioned the care of them was transferred to the professor of belles-lettres and the English language and literature. On May 1, 1855, Mr. Henry Coppée was elected to that chair, and accordingly became librarian of the University. In 1859-'60, several appropriations larger than heretofore were made for the increase of the library and it is in the latter year that we find the first mention of the Department of Law in connection with the library. A special room was set aside for this department and the books belonging to it placed under the charge of an assistant librarian. The regular appointment of librarians we may conveniently indicate as a further dividing line which marks the close of the second and the beginning of the third period in the history of the library. In 1866, Professor Coppée resigned his connection with the University and Dr. Charles J. Stillé was elected to his chair and assumed the duties of librarian, in which he was aided and succeeded by Prof. Robert Ellis Thompson.

On the removal of the University to West Philadelphia begins the series of special collections donated or purchased which now form the feature of the University's collections. The series is opened by the Wetherill Library, consisting of works on chemistry, collected by Prof. C. M. Wetherill and presented in 1871, after Prof. Wetherill's death, by his widow. The same year the Evans Rogers Library consisting chiefly of works on engineering and architecture was founded by Mr. Fairman Rogers, who donated the sum of \$10,000 for the purchase. Since then, Mr. Rogers has steadily added to the collection, particularly scientific periodicals.

In 1877 a catalogue of the Rogers Library was prepared and published by Dr. H. Haupt, jr., from which it appears that the library at that time numbered some 1,500 volumes, and to-day its extent is estimated at about 5,000 volumes.

In 1873 the trustees added \$2,000 to a sum of \$3,000 contributed by friends of the University for the purchase of the classical library of the late Prof. George Allen, professor of Greek and Latin at the University from 1845 till his death, in 1876. The library contained about 5,000 volumes, and while the bulk bore on classical literature, there were also works in it on military science and English literature, more particularly Shakespearean. In addition to this, \$5,500 were appropriated by the trustees for the divisions of history and English literature in the library, and \$200 was set aside for German and French books.

In 1874 the library received its first endowment fund through Miss Elizabeth Rhoads, who presented the sum of \$10,000, the income of

which was to be expended and the fund to be known as the "Tobias Wagner Library Fund." The year was a most prosperous one in the annals of the library, for in addition to these it received two smaller gifts, one of 354 volumes on Roman, French, and Scotch civil law, from Dr. R. E. Peterson, from the library of his father-in-law, the late Judge Bouvier; the other, of 238 volumes on Italian, German, and French literature, from Dr. Alfred Stillé; and the latter in the same year announced his intention to present his extensive medical library to the University, and after suitable provision had been made for the accommodation of the books in Medical Hall, the gift was accepted. The library (now placed in the new library building) embraces about 12,000 works and pamphlets on medical subjects. It is particularly valuable for the numerous sets it contains of the proceedings of medical societies, as well as medical journals in this country, England, and France. As an item of interest it may be noted that, upon the close of the Centennial Exposition (in 1876), the University received some valuable books and articles from foreign exhibitors. Germany was represented in this gift by the great publisher Tauchnitz, who presented editions of classical writers and other books. Chile gave a large collection of books used in the schools of the country, as well as various literary and scientific works published there, and among other countries participating we find Holland, Sweden, Switzerland, Spain, and Cuba.

In 1870 the University received by gift from the family Mr. Stephen Colwell's library on social science, a collection that has been described as "unique in its range and completeness." Mr. Colwell, a resident of Philadelphia, had been engaged for many years in forming his collection and paid particular attention toward gathering the small pamphlets that a few years after their appearance are generally so difficult to obtain. In addition to English works Mr. Colwell also collected French and Italian publications in large numbers. In all, the library consisted of between 9,000 and 10,000 books and pamphlets, but large as this number is, the value of the collection in the opinion of experts far outranks its numerical proportions.

A supplement to the Colwell library is the valuable collection of books and pamphlets on Political Economy bequeathed by Henry C. Carey, and which came into the possession of the University in 1879. It consisted of 1,415 bound volumes, representing about 4,000 distinct works. A noteworthy feature of the collection is a series of English pamphlets on political economy to the number of 3,000, bound in chronological order and covering the period from the close of the seventeenth century to the present time. Since the receipt of the Colwell and Carey libraries extensive additions by purchase and gift have been made to the library of economic science, more especially upon the establishment of the Wharton School of Finance and Political Economy in 1881, and in 1889 Mr. Joseph Wharton presented an endowment fund of \$25,000 for the maintenance of the library of the school founded by him.

In 1883 the Henry Seybert Library of Spiritualism and cognate subjects was established, which since that time has been steadily increased out of the fund specially bequeathed for the investigation of Spiritualism. The collection now numbers about 1,000 volumes.

In 1887, upon the death of Rev. Charles P. Krauth, D. D., vice-provost and professor of intellectual and moral philosophy at the University, the Society of the Alumni of the College Department presented a Krauth memorial fund for the purchase of books on philosophy.

The same year brought to the university a collection, presented by D. B. McCartee, M. D., of Chinese and Japanese literature to the number of about 1,000 volumes, as well as several hundred European publications concerning the history and literature of China and Japan. Still another collection of a miscellaneous character was presented the same year by Maj. Gen. Samuel Wylie Crawford, who has since then made further additions to the library.

In 1887 the philological library of the late Prof. F. A. Pott, of Halle, was secured through the efforts of the late Prof. J. G. R. McElroy. It contains about 4,000 works and is rich in works of general philology, the study and history of language, the alphabet, comparative grammars and dictionaries, treatises on a large number of languages and dialects, as well as publications of the learned societies of Germany, France, Austria, and Russia.

In the same year the collection of the Semitic library was begun by the purchase of an Assyriological collection, supplemented the following year by a large Arabic collection, and of a collection on Semitic epigraphy, besides portions of a library on the Hebrew language and on Old Testament criticism.

In 1888 Mrs. Hayden presented the library of her husband, the late Prof. F. V. Hayden, M. D., consisting of works on geology, paleontology, zoölogy, and botany.

The same year Mr. George W. Biddle and family founded, in memory of the late George Biddle, the Biddle Law Library. Its chief feature is the collection of the late Benjamin Harris Brewster, which, with its noted collection of American, English, Scotch, and Irish reports, numbers over 5,000 volumes. The foundation also provides for the permanent increase of the library.

In 1889 the classical library of the late Prof. Ernst von Leutsch, of Göttingen, consisting of about 20,000 volumes, was purchased. Among its features may be mentioned the 18 sets of the leading philological journals of Europe, and the more than 4,000 pamphlets, embodying the graduating theses of German university students and the annual *Programmschriften*, published by the universities and gymnasia of Germany during the past fifty years. These publications, which Prof. Leutsch received in his capacity as editor of the *Philologus*, have for the most part disappeared from the book market, and form a collection that is probably unique on this side of the Atlantic. Spe-

cial mention might also be made of the numerous works on the history of German universities, as well as the memorial publications issued by the latter on special occasions.

During this year also was begun the collection of Congressional and State documents, as well as general works and pamphlets for the newly-formed School of American History and Institutions at the University. The school, which is the first of the kind established in this country, already possesses, in consequence of energetic efforts on the part of its promoters, a library of more than 13,000 volumes. Among the features of the collection are a complete set of Congressional documents, the only one of the kind outside of the British Museum, records of State legislatures, complete for many of the States, reports of State agricultural and other commissions, American state papers, collections of periodicals, besides general and special works on American history.

At this time Provost William Pepper presented the medical library of the late Prof. William Pepper, very largely augmented by himself, together with an endowment of \$7,500 for its perpetual increase, as a memorial of his distinguished father whose name it bears.

In 1890 Frederick Prime, jr., presented a valuable collection of works on mining engineering and electricity.

The library also received by gift a considerable addition to its department of German philology and literature; and the same year the geological library of the late Dr. Charles A. Ashburner was presented by his widow.

In 1891 was added the scientific library of the eminent Joseph Leidy; also, besides gifts of smaller collections, a choice library of Chinese and Oriental literature collected by Richard Ashhurst Bowie, and presented by his son, Richard Henry Bayard Bowie; and, lastly, the Thomas H. Powers library of chemistry was endowed by his widow and daughter, the J. B. Lippincott Library of English Literature was founded by Mrs. Lippincott, the George H. Harrison alcove endowed by members of his family, and the Isaac Norris Library by Mrs. Cochran, in memory of the citizens whose names they bear.

During the year 1892 large additions were made to the library of psychology, and among other gifts received that of a valuable miscellaneous collection from Joseph S. Harris. The choice library of the late Dr. Philip Syng Physick was presented by members of his family; besides the medical library of the late Dr. Physick the collection included an interesting series of works on the institution and history of slavery collected by his grandson, Dr. Philip Physick Randolph.

Such is a survey embodying the essential features of the special collections added to the library during the third period of its existence. Resuming the thread of its history, it but remains to mention before passing on to the fourth and latest period that in 1884 Prof. Thompson was succeeded by Mr. James G. Barnwell as librarian, who held the



office until his election as librarian of the Philadelphia Library in 1887, when his successor, the present librarian, Mr. Gregory B. Keen, was chosen.

In 1888 Dr. Morris Jastrow, jr., was elected assistant librarian. In 1887 the prospect of erecting a suitable and special building for the library, which had long since outgrown its totally inadequate quarters, was seriously undertaken; so that with Mr. Keen's entrance upon his duties a new era in the history of the library may properly be reckoned. The following year saw the corner stone laid with the rites of the Masonic order, and on February 7, 1891, the building was formally dedicated in the presence of a large and distinguished assemblage, Dr. Horace Howard Furness, as chairman of the building committee, handing over the building to the provost, Dr. William Pepper, who in receiving it on behalf of the University made the important announcement of the intention to open the library to the public in general. The library thus safely launched upon a career of widened usefulness may be taken as an index of the general plane reached by the University. As in the past its fortunes have ever been closely bound up with the growth of the various departments of the University, so it may fairly be expected that in the future it will keep pace with the rapid unfolding of numerous projects that are tending to produce a new ideal of the University, commensurate with the changed conditions of intellectual life.

It will be appropriate to close this sketch with a description of the new library building which in many of its features is unique and represents in the adaptation of means to ends the accumulated experience of the past.

The new library of the University of Pennsylvania, which was formally opened on February 7, is an imposing structure of red brick and stone, the effect of which is heightened by its advantageous position in the complex of university buildings at the intersection of Woodland avenue and Thirty-fourth street. The architects are Messrs. Furness, Evans & Co., of Philadelphia.¹

The building may be divided into two parts: the tower 95 feet high, with the extension in amphitheatrical form, in all 140 by 80 feet on the one side; and the glass-covered stack 32 by 110 feet, on the other. Passing through the handsome entrance at the center we come into the spacious hall, to the right of which is the wardrobe, while to the left the space under the imposing staircase has been temporarily fitted up as a museum for Egyptian antiquities. Crossing the hall we enter the main reading room, again divided into two sections, the one 40 by 42 feet is an uninterrupted space to the roof, a height of about 60 feet; the other an extension in semicircular form, 40 by 54 feet, terminating in six alcoves 12 by 18 feet. In addition to these, there is a larger alcove at

¹ This description is reprinted (with slight modifications), through kind permission of Messrs. Harper & Bro., from an article prepared by the writer for Harper's Weekly of February 14, 1891.

the side lighted by windows. The walls of the reading room are finished in brick, relieved by numerous terra-cotta pillars and arched windows. Two archways, supported by columns, separate the front of the reading room from the back, which is set aside more particularly for the students, while the alcoves are devoted to periodicals, seminary purposes, and private work.

A feature of these alcoves is the strong light which is let in through a skylight. The smaller reading room receives its light from the semi-circular row of windows at a height of about 20 feet, while in the larger room ample provision for light is made by a row of windows on one side and a large skylight in the center. At the one end, and immediately adjoining the entrance to the reading room, is the receiving desk, from which there is the entrance to the book stacks immediately behind, while further to the left is situated the librarian's office, a cosy little apartment that again communicates with the cataloguing room; the latter, 16 by 60 feet, is in reality an extension beyond the reading room and, like the alcoves, it receives its light from the top. The separation between the cataloguing room and the reading room is formed by an elaborate series of drawers containing the catalogue cards of the library, one case being devoted to an arrangement of cards according to subjects, the other to a duplicate arrangement according to authors. A feature of the cases is that they may be pulled out in either direction, and can thus be consulted as conveniently by the clerks in the cataloguing room as by the readers in the reading room. The long wall of the cataloguing room has accommodations for 6,000 volumes, while in the basement beneath there is a storeroom with accommodations for 15,000. A delivery room in the basement with a separate entrance from the street communicates with the cataloguing room by means of an elevator. As rapidly as the books are catalogued they are placed on trucks and rolled into the book stack.

Passing from the receiving room into the latter, the visitor is struck by the novel features for the accommodation of books; you almost fancy yourself in a glass palace, for, wherever one looks, the ceiling, the flooring, and the upper part of the walls, one sees nothing but glass. Running the length of the building are the shelves, conveniently divided into rows, each accommodating about 5,400 volumes, besides shelves along the ends, which give a total capacity of 100,000 volumes for the ground floor. The basement beneath, which is at present set aside for newspaper, pamphlet, and periodical collections, is equally spacious; while everything is in readiness to raise three stories of glass flooring, whenever required, above the ground floor, and without materially affecting the light of the latter and of the basement. The total capacity would thus reach over 350,000 volumes, with a further possibility of extending the stack itself through the exterior wall. The construction, glass and iron, is entirely fireproof; and cut off as the stack is from the rest of the building by low walls of brick with an air space



AMONG THE BOOK STACKS. LIBRARY.

between, it will be seen that the protection for the books is as ample as can be contrived. A unique feature in the construction of the glass floor consists in the fitting of the glass aisles within rolled star bars of iron supported on iron beams. The stacks resting upon the star bars, the tops are so constructed as to permit the same plan to be carried out in the erection of a second story. Distributed in the stack space are a number of tables for the convenience of those who in special cases require to work in the immediate vicinity of the books; but it may be well to add in this connection that running along the main reading room are shelves on which are placed the reference works and dictionaries constantly needed by readers and students; and so also the alcoves are fitted up with a shelving capacity of 3,000 volumes each, and which are intended to be set aside for special collections that may be presented or loaned to the University.

Over the extensions to the reading room, on either side, are large apartments accessible from the main stairway, which are at present devoted to the museums of the department of archeology, of which an account will be found in a preceding chapter.

CHAPTER XXIII.

THE SCHOOL OF ARCHITECTURE.

The founding of a School of Architecture in Philadelphia was a natural result of the recent remarkable advance in the status of architecture in this country. Within the period of a very few years the standard of good architecture had been placed immeasurably beyond the point it formerly occupied. The evidences of this were everywhere patent in the character of our architecture, in the importance of the architect as a professional man, and in the great and growing interest on the part of the public in all matters architectural. The most striking effect of this advancement, within the confines of the profession, had been upon the education and the training of the architect himself. It had become imperatively necessary that he should be a many-sided and a broadly educated man. The new order of things demonstrated beyond question that the time was past when the promoted draftsman, or the clever builder with a knack for drawing, could enter the profession and secure recognition; it showed that the architect, to be really worthy the name, must base his professional training on a liberal education and a broad-minded culture; that he must add to this a knowledge of the science and the æsthetics of his profession, and must acquire a familiarity with the forms and traditions of architecture to be gained only by travel and study abroad. It was preliminary training of this kind that enabled our best architects to produce their best work and to advance as they have done the standing of architecture as a fine art.

A new set of conditions, very different from that under which, in past generations, we have produced architects of eminence came about in recent years with the vast impetus felt in building throughout the country. Public opinion required that the structures, springing up like a mushroom growth through the length and breadth of the land, should be "architectural." What that term might mean the public did not properly understand, but it certainly meant that something higher than the constructive skill of the carpenter and mason should find expression in building. This demand for "architecture" was at once met by a supply of "architects," partially drawn from the building trades and almost entirely educated at the drafting table of the architect. Thus the profession became filled with an active, capable, and

intelligent class of men working earnestly for the improvement of our architecture, but, be it confessed, making slow progress toward that end. The conditions under which they, as a class, qualified for the profession, made it practically impossible that architecture, as a fine art, should be either fully understood or developed by them.

But during this period a leaven was working in the profession, the leaven of education. A feeling of dissatisfaction with the æsthetic state of the profession and a broadening conception of the greatness and nobility of architecture made themselves felt in various ways that have worked a high and rapid advancement in the status of the architect. This impulse began to operate toward higher education and showed itself in many ways. Our younger men turned toward Europe as the natural field for the highest architectural training and its great schools have ever since received numbers of them as pupils, while in our own country technical schools have been established, to become strong and efficient. A large contingent of our younger men have enjoyed extensive foreign travel, while numerous traveling scholarships have been founded to foster and encourage this invaluable means of education. Architectural organizations have become strong and influential and have won their way to high public esteem. But all these movements have been but the outward indications of the change. To one within the profession, who has studied its conditions and noted its growth, the transition it has undergone is known to be remarkable and pregnant with promise for the future. The American architect who stands at the head of his profession to-day is a man of highest attainments. He has received a general education that places him on an equality with his educated clients, he has had the best technical training afforded by the architectural schools of this country or Europe, and he has rounded off and completed his education by foreign travel. His professional acquirements have set the standard for his younger brothers, who know that without similar advantages they can not rise to his level.

The movement that has brought about this state of things and has produced this type of architects has brought into prominence, as its chief factor, the architectural school. These schools provide their graduates with that education in the science, the æsthetics, and the history of the art of architecture, which, supplemented by foreign travel and study, gives them as architects the highest possible development. The advantages thus secured are indispensable to the complete training of the architect, and they can not be secured by the student in the architect's office. The history of these schools in this country shows a growth and prosperity that is the highest proof of these claims. There have been established, in New York and Boston and at the Cornell University, schools which have grown steadily into high esteem and which, under able management, have attained a large attendance and possess a splendid material equipment.

That such great architectural centers as New York and Boston should have schools of a high grade showed Philadelphia, herself a center of

immense activity in architectural practice, that the natural base for another school was within her own borders. All the conditions were favorable to the establishment of such an institution; much more so, indeed, than at the founding of the older schools, because public and professional sense of the need of them was much keener. The need of such a school and the promise of its success became so obvious by 1890, that the project for its establishment was taken up in the early part of that year and seriously discussed in various quarters. The home of the new school, however, must be decided in recognition of one fundamental principle. A school of architecture must have a course of study broad and comprehensive enough to thoroughly educate the architect. As indicated above, he must be grounded in the science, the history, and the æsthetics of architecture and must add to this a complement of liberal studies before he can be said to have an architectural education. A school without these courses, though it may offer the best advantages in the way of drawing, is not a school of architecture; it is a school of architectural drawing and its graduates will be, perhaps, clever draftsmen, but never educated architects.

The proper location for the new school for Philadelphia was, therefore, as obvious as the need for it, and in recognition of the above principle the University of Pennsylvania promptly took the initiative and established the "School of Architecture" within its own jurisdiction. This was accomplished in 1890, with the active coöperation and valuable assistance of Theophilus P. Chandler, jr., by a reorganization of the "course in drawing and architecture" in existence under Prof. Thomas W. Richards since 1874. This action by the university placed the new department on the broadest basis possible for an architectural school. Thus established, and provided with a faculty drawn from among Philadelphia architects and artists and university officials, the new school was placed in charge of Mr. Chandler, as director, assistants were appointed, large and well-lighted quarters assigned for the drafting rooms, and the necessary equipment for the conduct of the department provided. The course of study was opened to students in October, 1890, and was at once entered by a class of such size as to prove beyond a doubt the wisdom of the action of the university. The close of the first year saw the school placed well beyond the experimental stage and with a most promising outlook for the future. The personnel of the corps of instruction underwent at this point a few changes and assumed the form as shown below in the faculty list. Mr. Chandler retired from the directorship, which office was thereupon discontinued, and Mr. Warren P. Laird, who had been called from a course of architectural study in Paris to assume charge of the instruction of the school during the year, was elected to the chair of architecture. Prof. Laird succeeded Prof. Thomas W. Richards, who after a long and honored incumbency of the chair of drawing and architecture, resigned at this time to enter again the active practice of his profession. The growth of the school, to the

date of this writing, the close of its second year, has been little less than remarkable in point of attendance of students, while in efficiency and in public esteem it already compares favorably with the best schools in the country. Its present condition can be best judged by the following résumé:

The course of study is thorough and comprehensive, comprising all the essentials to a complete architectural course. The various lines of instruction may be gathered under three heads, viz: Liberal, scientific, and æsthetic. The first are intended to give general culture, the second to ground the student well in the science of good building while developing and disciplining his mental powers, and the third, chief in importance, to give him a true conception of the nature of architecture as a fine art by teaching him its history and æsthetics and the great principles upon which it is based. The strength and value to the student, of this course, lie in the fact that all the studies are correlated in such a manner that every one has a direct bearing on the central theme, architecture, with reference to the future career of the student as an architect.

The architectural studies, forming the purely professional part of the course, are taught by a large corps of instruction, giving their time to these duties to the exclusion of all other university work. These studies begin with the freshman year and are carried through the four years of the course, requiring from year to year an increasing amount of time in their relation to the other studies of the course. In this line of work the student is drilled, throughout four years, in free hand drawing in all its phases. This comprises drawing with pencil, pen, brush, and crayon, in black and white, in color, from the flat, the solid, photographs, the cast, and nature. Allied to this is the course in clay modeling. The student is drilled in mechanical drawing, learning to use drawing instruments rapidly and well and pursuing his studies in the science of drawing through brush work, isometric shades and shadows, and perspective. Comprised, in a general sense, under freehand drawing, but set aside from it in the curriculum because of their special importance, are water-color and pen-and-ink drawing. Designing, as the most important single subject among the professional studies, is prepared for in the freshman year by exercises in drawing and rendering in line and India ink of architectural features, moldings, etc., called Elements of Architecture. This is followed in the sophomore year by a thorough study of the Orders of Architecture, which forms an introduction to the study of design proper, to which, in an elementary form, the sophomores give the second half of the year. The junior class continue this subject, giving it an increased amount of time on a more serious line of problems, while the senior class are carried through the most advanced line of problems falling within the province of the school, completing their entire course by a thesis in design. These exercises are under criticism of the professor in charge

and are accompanied by lectures on the theory of design. It is aimed in giving this course in design to lay a basis of correct thought and habit in the solution of architectural problems, while guarding against servile copyism of "style" on the one hand or a vagrant tendency toward eclecticism and picturesqueness on the other. It is attempted to ground the student in the principles that underlie good design; to familiarize him with that which is good and true in his art, and to inculcate habits of earnest and conscientious study that shall make him capable, as an architect in the future, to take up the problems presented in active practice and give them a direct, simple, and scholarly solution.

The subject of architectural history is taken through Egyptian, Assyrian, etc., Greek and Roman, early Christian, Romanesque and Byzantine, Gothic, Renaissance, and modern architecture by means of lectures supplemented by recitations. These lectures are illustrated by lantern slides. The history of ornament is treated in the same manner.

In "measured drawing" (the measuring of buildings already erected and drawing them to scale) the students receive a drill which unites, in a measure, their practical studies in working drawings and their theoretical studies in design and rendering. The course has a practical character, given it by the lectures on construction, the visits to technical establishments, and the making of architects' working drawings, the last being part of the sophomore year's work, and the first two running through the sophomore and junior years. This phase of the course has a two-fold value (*a*) in giving a practical character to the course, and by so doing checking a too ready tendency on the part of the student to regard architecture as a thing of pure theory, and (*b*) by giving the student a certain amount of drill that enables him on entering an architect's office to make himself of immediate use. These studies are allied to the scientific branches described below. The purely professional part of the curriculum is completed by lectures and demonstrations on sanitary science, acoustics, professional practice, specification, estimates, etc. Mention must be made of the work required during vacation. This insures a continuity of attention to the main subject throughout the four years of the course. The student is advised to spend the greater part of his vacation in an architect's office, but may substitute for this a certain amount of sketching, the requirements being so framed that they need not deprive the student of any needed rest and relaxation, while still necessitating some form of activity in architectural work.

The scientific studies are selected because of their close relationship to the main subject. In the earlier years they furnish an indispensable mental training while giving the student a basis of scientific knowledge for application in his later studies and in his after career as an architect. These studies are, in freshman and sophomore years, alge-

bra, trigonometry, geometry (solid, analytic, and descriptive), chemistry, and physics. In junior and senior years the science studies are of direct application to architectural practice and comprise graphical statics, mechanics of materials, surveying, and geology.

The third division of the curriculum, giving the general culture studies, properly includes the above-mentioned science studies of the freshman and sophomore years. Added to these are rhetoric, English, composition and English literature, French and German, and general history. These studies have a great practical advantage for the student, both for the purposes of general education and for the future usefulness of the young architect. In English composition and literature he obtains a drill in writing and an acquaintance with the best models by which alone he can learn the correct use of his mother tongue, while a reading knowledge of French and German opens to him the wide field of the untranslated literature of architecture.

Two new courses were opened in the department on this, the beginning of its third year; the two years' special course in architecture, and the two years' course in interior decoration. The latter, lying strictly within the province of the school's work, provides a thorough course of study and fits its graduates to practice "interior architecture." It is under the charge of Mr. Herbert E. Everett, of the Course in Decoration, Boston Museum of Fine Arts. The two years' special course offers to draftsmen from architect's offices, with limited time at their command for study, the advanced subjects from the professional part of the four years' course.

The School of Architecture offers the following courses: The four years' course, leading to the degree of Bachelor of Science in Architecture; the two years' special course, granting a certificate of proficiency, and the two years' course in Interior Decoration, granting a diploma. The school also provides all instruction in free hand and mechanical drawing for freshmen and sophomores in the Towne Scientific School, free-hand drawing in the course in biology, and architectural history in the senior year of the Civil Engineering Department.

The school had outgrown the quarters given to it in 1891-'92, and the suite of rooms shown in the accompanying plan was assigned to its use in the present year—1892-'93. To these is added the modeling room, located in another part of the college building. The school, in its rapid growth and steady gain in efficiency, owes much to the generous help given it in instruction by busy professional men on its lecture corps and in its professorship in art. From the first these gentlemen have shown a most unselfish interest in the welfare of the school, strengthening the hands of the regular corps of instruction by assuming instruction in subjects with which they were specially conversant and giving time beyond this to the various engagements of faculty and committee meetings.

THE CORPS OF INSTRUCTION IN ARCHITECTURE.

The corps of instruction in those branches pertaining specially to architecture is made up as follows:

Warren P. Laird, professor of architecture, in charge of the school of architecture, design, history of architecture, the orders, construction.

Charles E. Dana, professor of art, water-color.

Julian Millard, instructor in architecture, instrumental drawing, elements, shades, shadows, perspective, and elementary design.

Edmund A. Stewardson,¹ instructor in modeling, modeling in clay, junior class.

Wilson Eyre, jr., instructor in pen and ink, pen-and-ink drawing, junior and senior classes.

Herbert E. Everett, instructor in drawing, free-hand drawing, all classes.

LECTURERS ON ARCHITECTURE.

Theophilus P. Chandler, jr.,² architect.

Walter Cope, architect, history of Gothic architecture.

Frank Miles Day, B. S., architect, history of Greek and Roman architecture, history of Renaissance architecture.

Wilson Eyre, jr., architect, theory of design.

Barr Ferree,³ New York, history of architecture.

Frank Furness, architect.³

Addison Hutton, architect, building construction.³

John Stewardson, architect, history of ornament.

Joseph M. Wilson, architect and civil engineer, building construction.³

LECTURERS BY APPOINTMENT, 1891-92.

George C. Mason, jr., architect, history of early Christian, Romanesque, and Byzantine architecture.

Austin W. Lord, architect, rendering of architectural drawings.

LECTURERS ON SANITARY SCIENCE.

John S. Billings, M. D., LL. D., director of the university hospital and lecturer on sanitary engineering.

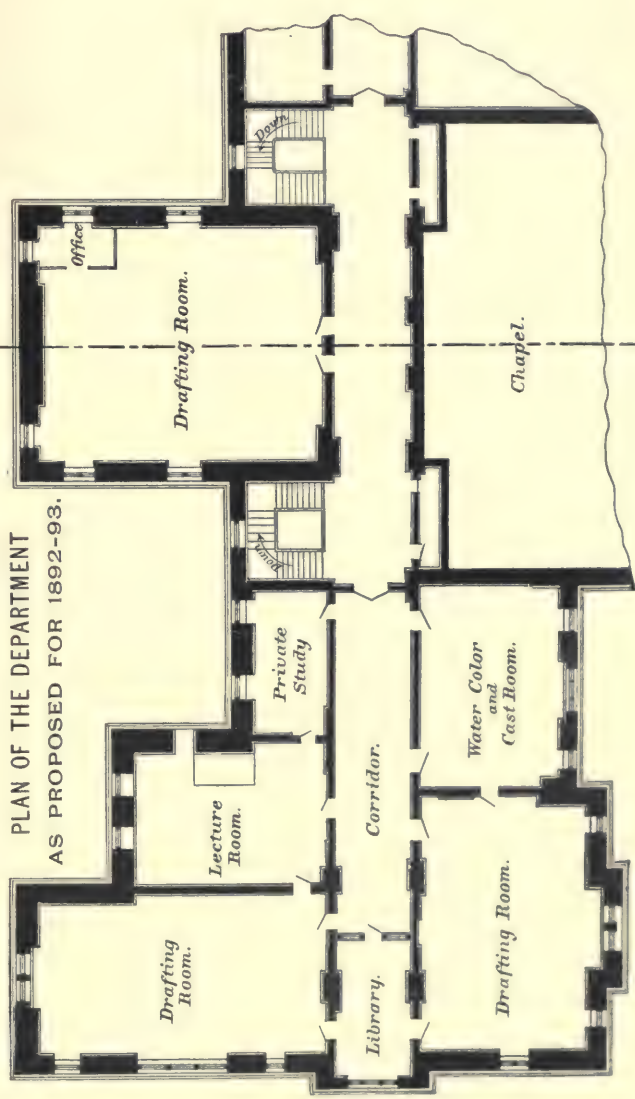
A. C. Abbott, M. D., first assistant lecturer on sanitary engineering.

¹ Deceased.

² Subjects unassigned at date.

³ Retired from faculty in 1893.

PLAN OF THE DEPARTMENT
AS PROPOSED FOR 1892-93.



CHAPTER XXIV.

UNIVERSITY UNDERGRADUATE LIFE, 1740-1791-1891.

College undergraduate life is largely molded by external circumstances; and as we trace the history of any college we will find that the everyday life of its students has followed a course of development along with the institution itself. And now that the first hundred years of the corporate existence of our University have passed away, we may with interest compare the two pictures, University undergraduate life of the last century and University undergraduate life of our own times.

Somewhat different from the undergraduate life of the present was the undergraduate life of over a hundred years ago, in the days of cocked hats and knee breeches, when Philadelphia was but a small provincial town, when our country was the colonies of Great Britain, and our forefathers were the loyal subjects of His Majesty, King George the Third. The University, at first known as the Academy and afterwards as the College, was then established on Fourth street, near Arch. Even at that early day the College was one of the principal institutions of learning in the colonies, and was known abroad almost as well as at home. Its faculty consisted of five professors and a number of instructors, a large corps for that time, and its curriculum comprised the studies which continued, until quite recent years, to comprise the course of our best American colleges. It numbered its students by the hundreds, and drew them from all the colonies, many coming also from the West Indies. Such of the students as came from abroad were lodged in dormitories within the College walls, and we may add, as a curious example of the morals of the age, that the funds for the erection of these buildings were raised by a lottery. At this time the entire annual expense of a student, including tuition, board, and firewood, was only £30.

An ancient statute book of the University gives us an insight into the college life of the last century; and as we gaze upon the wrinkled yellow paper with its faded writing, there rises before us a shadowy picture of those olden times. The document is valuable, not only intrinsically, but for the thoughts that it suggests. The code aimed at regulating the entire life of the student by exercising physical, moral, and intellectual supervision over him in all ways "found salutary and

good upon trial." To begin, fighting was a serious offense; that is, an offense punishable by corporal chastisement. This rule was, perhaps, rendered necessary by an old college custom which compelled every student upon his admission to have at least one pugilistic battle with one of his classmates, in order to establish his claim to the honor of being called an "Academy boy." And as an indication of the tenacity with which the eighteenth century collegians clung to their ancient customs, we may note that on the margin opposite this clause of the rules stand the melancholy words, "Needs amendment." Blasphemy, cursing, drunkenness, gaming, and kindred offenses were punished by a fine of 3 shillings or by chastisement; and if the transgressor persisted in his evil courses he was liable to suspension. Nor did the rules forget the religious education of the student. There was a special provision compelling church attendance on the Sabbath, and elaborate rules referring to chapel attendance and behavior; but it does not speak well for the morals of the time to find here the marginal note, "Not effectual." An absence from prayers in those days cost the culprit two English half-pence, and for "cuts" of all other kinds the price was an even shilling. To restrain the too ardent spirits of our forefathers, and to preserve the scholastic quiet that ought to envelop an institution of learning, it was enacted:

No student shall climb over the fences of the College yard, or come in or go out through the windows, or play ball, or use any kind of diversion within the yard of the University, nor shall in the presence of the trustees, professors, or tutors, play ball, wrestle, make any indecent noise, or behave in any way rudely in the College yard or streets adjacent.

It is evident from this that athletics had not yet come into fashion.

Thus the rules run on until, as we read and ponder, it requires no great effort of the imagination to picture to ourselves the everyday undergraduate life of a hundred years ago.

History gives us several amusing anecdotes of the early instructors in the College. Master John Beveridge, a Latin professor, was the butt of all the practical jokes of the students. They dared even to steal his wig off his head; and it is related that on one occasion, while he sat hearing a recitation, the shutters were suddenly closed, leaving the room in darkness, and the astounded instructor was driven from his room by a shower of books, amid the yells and jeers of the class. But David James Dove, the first teacher of the English school, was more than a match for the students. To borrow an eighteenth century pun, he was said to have been more of a falcon than a dove. When he kept a private school, before his elevation to a college professorship, he invented a novel method of punishing lateness. When a boy was late in the morning he used to dispatch a deputation of six scholars with a bell and lighted lantern to escort the delinquent to school in state. And it is related that on one occasion Master Dove, being himself belated, was waited on by the committee. But he, nothing

disconcerted, put himself behind the bell and lantern, and marched to school, "to no small gratification of the boys and entertainment of the spectators." Whether he introduced his custom into the College the chronicle saith not.

The one form of athletics cultivated in the College in pre-Revolutionary times was running. Over this sport they became even enthusiastic. "Stripped to the shirt, head bound with a handkerchief, loosened knee-bands, and barefooted, the racers started from the Arch street corner and encompassed the College grounds; while the people stood in crowds, open-mouthed, eager to catch the first view of the victor, their 'swift-footed Achilles.'"

But the one event in the College year that aroused popular attention to the highest, that brought together all the gentry of Philadelphia and delegations from outside the colony, was the annual commencement. In those days a commencement was the affair of a whole day. The exercises began at 9 o'clock in the morning and continued till noon, when the audience dispersed for dinner, after which they reassembled until sundown. The program comprised a dialogue and ode, commemorating some public event, a "charge" to the graduates, poems, orations, disputations in Latin and English, and the discussions of theses. The music, a prominent feature, was furnished by the Orpheus Club of the College, or by His Majesty's Marine Band. At the commencement of 1759 the Hon. James Hamilton, governor of the Colony, favored the citizens with a few words. In 1762 the program was in Latin, a huge broadside 2 feet long and a foot wide, printed in display type. The newspapers of the time tell us that the "Commencement was held at the College in the Presence of a learned, polite, and very brilliant Assembly," that "His Honour, the Governor, was pleased to attend the whole day," that "many other Gentlemen of learning and the first Distinction from the neighbouring parts were likewise present," that the valedictory was spoken "with much Elegance and Tenderness," and that "Everything was conducted with the utmost Decency and order." The attraction of the commencement of 1771 was the singing of an ode to organ accompaniment by Jacob Bankson, esq., A. M. The other musical features of the entertainment were furnished by the bands of the Eighteenth or Royal Regiment of Ireland, and of the Twenty-first or Royal North British Fusileers. The exercises lasted the whole day and are said to have given "general satisfaction." In 1775 the Continental Congress attended the commencement, "the galleries and other parts of the house being filled with as many of the respectable inhabitants of the city as could find room." The eighteenth century commencement, in truth, was the one outlet for college feeling, suppressed for an entire year, and into that celebration the collegians of the time threw themselves heart and soul.

Forever passed away are these scenes of ancient college life, and the vision of eighteenth century manners and customs gives place to the

picture of our modern university undergraduate life. Yet the intervening years were not devoid of interest; they were years of earnest, hard work; years marked by the birth of many schemes which have come to maturity only in this our day. And the college life of this period was marked by many an important event. We could tell of the abrogation of the College charter in 1779, of its restoration ten years later, and of the organization of the University under its present charter in 1791. We could tell the story of our College during the Revolution, when its buildings were seized as barracks by the Continental soldiers, and when, later, the iron heel of the British trooper was planted in those halls consecrated to learning. We could tell how during the War of 1812 the University boys worked on the fortifications like common laborers, and pages could be filled with the narration of the gallant conduct of Pennsylvania's sons during the Civil war. But these are matters of history, and all the world knows them. These years were the period of struggle; to-day, the period of success.

The departure of the University in 1872 from Ninth and Chestnut streets, whither it had removed in 1802, marked the new era in University affairs; and from this time the undergraduate life begins to present substantially the same aspect that it does to-day. The University, since it has removed to its new home, taking advantage of the opportunity for growth thereby afforded, has advanced in all directions with gigantic strides; and student life, expanding along with the College itself, has become complex and many sided. But there is one consideration that must be borne in mind in the study of life at the University of Pennsylvania—the absence of dormitories. This, together with the location of the University close to the heart of a great city, gives a distinctive feature to undergraduate life, since external relations vie with the College in claiming the interest of the student. And as a result of environment, many of the phases of life common to other great colleges are unknown in the University, while, at the same time, life there presents some unique features.

Viewed from the educational side, life at the University does not differ greatly from life at any other large college where an able corps of instructors, well-arranged courses, and a complete equipment combine to afford a higher education. In educational matters the University has kept fully abreast of the times. She was early to introduce the elective system, and besides, should a class of students desire to take up a special study, they have little trouble in finding an instructor able and willing to assist them; and in addition to class instruction, both in course and voluntary, a great deal of work is done in the University through the seminar system. A number of students, interested in a particular study, meet their professor, often at his house, and spend an evening in informal discussion. The amount of good accomplished by the seminars is incalculable. Besides the knowledge acquired by a method of instruction in which the interest of all is espe-

cially aroused and the preceptor acquainted with the mental characteristics of his class, students and professor are brought into intimate personal contact, the barrier that too often stands between them is broken down, and students and professor bound together in a closer union.

The influence of these features above alluded to, the absence of dormitories, and the location of the University in the city, is most noticeable when we turn to the social side of undergraduate life. There is no home life of the College, and no opportunity for the formation of those relations which usually lend a charm to college life. But the social instinct of the University men, curbed in this direction, seeks an outlet through the medium of societies, manifold in number and varied in character. There are societies literary, scientific, religious, and secret; clubs artistic, musical, athletic, and social. In the first place, we have the Philomathean Society, the old established literary association, and her worthy sister the Scientific Society, and the Greek letter fraternities. Then we may note the Christian Association, and the Church club, the orchestra, the banjo club, and the glee club, the mask and wig, the sketch club, the gun club, the chess club, and the bicycle club. The list might be indefinitely extended were we to attempt an enumeration of all the miscellaneous societies, with objects as diverse as their names. Into these various associations the students are drawn, each one according to his tastes and endowments; and in the smaller circle of the association they try to find a substitute for the wider college life that is at present impossible. And in passing, we must notice, also, athletics, for they, too, exert a social influence. Yet ultimately, the societies react on the whole University. For the men in the various societies and on the various athletic teams are knit together more closely by the bond of their common interest, and thus is aroused a livelier interest in the College, of which the society is but a part.

Though hazing is a barbarism unknown in the University, we are not to imagine the University men devoid of class spirit. Indeed, nowhere does class spirit run higher, and nowhere are the sophomores, the proverbial bullies of the college world, more jealous of their rights. By unwritten University law no freshman is permitted to use a cloth bag, wear a high hat, or carry a cane, and woe to the freshman who, in his ignorance or insolence, dares to transgress these regulations. After a brief tussle fragments of his hat or bag adorn the lapels of the victorious upper classmen, and the broken cane goes off to the carpenter shop to be cut into rings suitable for the manufacture of sleeve buttons for the victorious "sophs." But these fights are usually prearranged affairs, where the freshmen, attired in canvas jackets and short breeches, and some even naked to the waist, appear on the scene brandishing their cane of well-seasoned hickory 6 feet long and 3 inches thick, or intrench themselves in a convenient corner and dare the sophomores to oust them. Many are the escapades perpetrated

during these fights, yet they are marked by the absence of anything like violence and are really nothing more than friendly trials of strength between the two classes. They are most frequent in the early part of the college year, and reach their climax about midwinter in the Bowl Fight. The sophomores are given a certain number of minutes to place in a great wooden bowl, which they have kindly prepared for his reception, the lowest honor man of the freshman class. Should the freshmen succeed in holding their bowlman from the grasp of the sophomores until time is called, the freshmen then struggle to break the bowl. In the olden times, when the fight took place in the city streets and the police and "muckers," as the denizens of the West Philadelphia streets are called by the collegians, took part in the fray, bowl fights were indeed wild scenes; but since under the new régime the contest is confined to University ground and governed by rules they have been stripped of their horrors, and, in fact, have been so refined away that they seem passing into the shade of the traditional.

Truly is college life spiced with variety. The same man whom we see in the morning, in canvas jacket, howling and tugging in the center of a cane rush, we may find a few hours later, attired in faultless evening dress, whispering honeyed trifles as he glides through the circling mazes of a waltz. In the course of the year there are three balls given by the University classes—the sophomore dance, the junior ball, and the ivy ball of the senior class. And pleasant sights, in truth, are college balls; the room tastefully decorated with flowers and hung with college colors, the walls adorned with fraternity insignia and athletic trophies, and the gay whirling throng of handsome young fellows and pretty girls. And besides the balls, the concerts of glee club and orchestra, the dramatic performances of the mask and wig, and the athletic exhibitions and contests, may be considered society events. Yet all these affairs accomplish a better result than merely furnishing amusement, for they attract the attention of the community and stimulate public interest in the University and its work.

Of late years there has appeared a tendency to allow many of the events of the year to gravitate towards commencement week; and while in olden times a commencement was the affair of a whole day, nowadays the celebrations attendant on the close of the College year are distributed over the course of a whole week. Baccalaureate sermon, cremation, junior exhibition, ivy planting, class day, and commencement, form a brilliant series of events, and for the time being the University becomes a center of general interest. The ceremony of ivy planting is a beautiful allegory. With suitable exercises, an ivy is planted beneath the College walls, and above is affixed a marble tablet bearing the name of the class and an appropriate device, as symbols of perpetual youth. Cremation, formerly as riotous a scene as an old-time bowl fight, is transformed into a magnificent pageant. This is the awful night when, with solemn and mysterious rites, the exultant

sophomores place the torch to the funeral pyre of their vanquished enemy, the author of their most hateful text-book. Class day, in the main like similar celebrations in other colleges, is marked by one particularly pleasing incident, the presentation of a wooden spoon to the man who has endeared himself most to his classmates. To elect him spoonman is the highest honor a University class can confer on a classmate, and it is an honor to be remembered for life. The week is also marked by the publication of *The Record*, the literary souvenir of the graduating class. First published about fifteen years ago as a thin paper-covered pamphlet, *The Record* has grown into a large handsomely-bound book, profusely adorned with illustrations. It contains statistics from all departments of the University and of all the organizations, the personal records of the members of the graduating class, the class-day exercises, and miscellaneous articles of a somewhat apocryphal nature; and within its pages is many a bit of real wit, and many an artistic gem. And finally comes commencement, when, attired in cap and gown, the student advances to receive the coveted degree.

Such is a sketch in outline of university life of a century ago and contemporary university life. It is these incidents of undergraduate days, many of them in themselves trivial, that indicate the moral and intellectual atmosphere in which the collegian lives for four years, just at the very period of life when a young man is most susceptible to external influences. The real aim of a college is not only to train the intellect, but to fit men for a place in the world; and undergraduate life, by the intimate association of man and man, and the contact of mind with mind, molds and strengthens the character. College life with its varied experiences is, in fact, but a miniature of the larger life for which it is the preparation; and that college which most thoroughly equips its students for their battle with the world, fulfills its mission in the truest and highest sense. Our alma mater has ever nurtured her children in true nobility, has ever held before them the ideal of true manhood, and as the years roll by, still bearing aloft her glorious standard, "*literæ sine moribus vana*," may she ever send forth her sons worthy the name of "Good Old Penn."

CHAPTER XXV.

ORGANIZATIONS WITHIN THE UNIVERSITY.¹

The history of every institution such as the University of Pennsylvania exhibits an increasing differentiation into new channels and a widening influence due to the greater number of points in which it puts itself in contact with the outer world. In the earlier period of its history there was little organization among the students of the University, except such as the college authorities imposed upon them by reason of equality of years or attainment.

The various organizations within the University fall naturally into several well defined groups: (1) Alumni and class organizations; (2) organizations intended to supplement the ordinary curriculum of study; (3) organizations for special literary or scientific pursuits, including students' publications; (4) musical and dramatic societies; (5) athletic societies; (6) associations for purely social purposes, including the Greek letter societies and other fraternities, and (7) societies not otherwise classified. In many instances it will be impossible to draw a rigid line of classification, because many bodies, originally organized as purely ancillary to the regular curriculum of study, have long since become an integral and recognized part of the regular course, whilst even some of those, not strictly in the line of mere study, have become so completely a part of university life, that to judge them apart would be to do violence to the spirit, if not the letter, of their constitutions. We shall proceed to consider these groups in the order mentioned above.

Class organizations have long been the established custom at the University of Pennsylvania. They extend to nearly all the departments, and are usually continued after graduation, frequently for many years. The desire to continue the associations of undergraduate life has led to the formation of various alumni societies, of which the earliest is the Society of the Alumni of the University of Pennsylvania, as it is styled, which held its first annual meeting July 14, 1836. The society, as now constituted, consists of graduates of the College Department of the University, and such other matriculates of that department as may have been elected to membership by the Board of Managers. Its object is to sustain and advance the interests

¹ Want of space has prevented the printing of this chapter in the original form.

of the College Department and to form an organized body of its graduates. An annual meeting is held on the evening of commencement day, which is followed by the annual collation. The ordinary business of the society during the year is conducted by a Board of Managers elected at the annual meeting. A committee of the society has been at work for five years on a complete synoptic catalogue of the matriculates of the College Department to be published shortly. The society offers various prizes for scholarship and in athletics. The society, moreover, keeps itself in touch with the undergraduates by means of a provision of its by-laws by which a member from each of the last three classes graduated is elected to the Board of Managers of the society. The Society of the Alumni of the Medical Department of the University of Pennsylvania was founded in 1870. The object of this society is to sustain and advance the interests and influence of the Medical Department by the promotion of sentiments of general brotherhood and amity among the graduates and by aiding in all efforts to elevate the standard of medical education and to extend the progress of medical science and art. Among other works the society has just completed the catalogue of the graduates of the Medical Department. The society awards a bronze medal annually to the member of the graduating class who receives the highest general average. The Society of the Alumni of the Law Department of the University of Pennsylvania was incorporated May 1, 1861; its object "to sustain and advance the interests of the department, and to cherish feelings of amity among its graduates." This society is also governed by a Board of Managers, holds an annual meeting, and has established the Sharswood and the Meredith prize, "to be competed for by members of the graduating class for the best and second best graduation essay." The Dental and Veterinary Departments have each an Alumni Society of similar organization to those already mentioned. An especial feature of the latter consists in the appointment of a permanent historian, whose reports form a feature of the annual meeting.

Although no combination of the various alumni societies of the University exists at present, unity of action among the alumni of several of the departments is secured through the central committee of the alumni. This committee is composed of graduates of the College, the Law, and the Medical Departments, and as representative of the general alumni, it enjoys the privilege of nominating to every third vacancy in the Board of Trustees of the University.

(2) The majority of those organizations which are intended to supplement the ordinary curriculum of study are of comparatively recent growth, and due largely to the increasing breadth of the courses of instruction, the introduction of the elective system into the College Department, and the improved methods of study in the professional schools. However, long before the introduction of the Seminar or Laboratory system, clubs of a more or less formal nature existed among

the students of all departments for the purpose of supplementing the ordinary courses by means of quizzes upon the lectures, or the preparation of papers involving original work. The Department of Arts has always had its study clubs in literature and the classics, the Towne Scientific School, clubs such as the present Civil Engineers Club and the Chemical Society, devoted either to some special technical topic or to the discussion of subjects of general scientific interest. In the Law School, aside from the Moot Courts and regular clubs, there have always been several quizzes; in the Medical Department, in the words of its Dean, "there have been thirty clubs and quizzes of varying importance in the last fifty years;" and the general statement is equally true of the Dental, the Veterinary, and the Biological Departments. Among the earliest is the Medical Institute, by some reported to have been in existence in 1817 and chartered somewhere in the forties. Another club of like character is the Demonstrator's Quiz, founded in 1886; it has given instruction to nearly 3,000 students since its organization.

Of late years the formation of small Medical Societies has done much to foster alike the studious and the social element among the students of that Department. There are at present four such societies. At their regular meetings papers are read and discussions held on subjects "relating to the theory and practice of medicine," addresses are occasionally delivered by honorary and ex-members, and in at least one a circulating magazine library forms one of the most valuable features. The membership of these clubs varies from fifteen to thirty. The oldest is the Alfred Stillé Medical Society; others are the Horatio C. Wood Medical Society; the William Pepper Medical Society, an extremely successful and popular organization, which aims at encouraging the scientific activity of its members, of which the writer has been unable to obtain any further data, and the D. Hayes Agnew Surgical Society.

The efficiency of the Law Department of the University is greatly enhanced by the work of several legal clubs, formed at different times among the students. Six of these are now in active operation, the Sharswood, Miller, E. Coppée Mitchell, J. I. Clark Hare, George Wharton Pepper clubs and the Phi Delta Phi legal fraternity. The work of clubs consists in quizzes and the argument of cases in which the members argue or sit as judges in rotation. The membership varies from twenty to thirty and the meetings are held weekly. The aggregate membership of all the clubs includes a large majority of the students in the Department. The earliest of these clubs was the Sharswood, founded in 1881.

The Biological Department supports two clubs of the utmost value in the prosecution of biological studies, the Journal Club, and the Naturalists' Field Club, devoted to field studies in natural history, especially the study of the fauna, flora, and geological features of the region surrounding Philadelphia. Both societies are extremely liberal in

the matter of membership, the latter especially aiming at making the University the center of the biological interests of the city. Other clubs of this class are the James Truman Dental Society and the Veterinary Society.

To these clubs the several seminars or seminaries of the various departments must be added, which although not strictly students' societies nor possessed of any formal organization, are all, to a greater or less degree, supplementary in their work to the requirements of the curriculum. The following seminaries are at present in active operation: In the Department of Philosophy Graduate Seminaries in Philosophy and in English Literature; in the Arts Department Professor Fullerton's Seminary with the Seniors in Philosophy, Professor Schelling's two Seminaries for Seniors and Juniors respectively in English Literature; in the Towne Scientific School, Dr. Smith's Seminary in General Inorganic and Analytical Chemistry. There are two seminaries in the Wharton School, one amongst the earliest; they are Professor James's, in Political Science, and Professor Patten's, in Political Economy. There is also the Seminary in the Biological Department, in which in addition to the usual reading and discussion of original papers by members of the seminary, invited guests and members of the faculty are frequently present to join in the discussion and add to its interest; also the two seminaries in the School of American History, Professor McMaster's and Professor Thorpe's.

Too much stress can not be laid upon the importance of seminaries in the life of the University. It is undeniably true that in the class room the professor can not give individual attention to the many men of a large class, and so the efficacy of his work is lost. But in the seminary, the professor, whilst holding the position given him by virtue of his authority, modifies it with a kindly interest in each man. Moreover, the seminary, as a rule, contains no men who have not the interest of the subject discussed at heart.

(3) Amongst associations for special literary and scientific pursuits none call for more careful consideration than the venerable Philomathean and Zelosophic Societies.

The active roll of the Philomathean society has included a majority of the prominent alumni of the University, amongst whom may be mentioned Hon. Robert J. Walker, Secretary of the Treasury of the United States; Henry H. Reed, vice-provost and professor in the University; Hon. George Sharswood, chief justice of the supreme court of Pennsylvania; the eminent physicist, Prof. John Fries Frazer, vice-provost of the University; Hon. H. D. Gilpin, Attorney-General of the United States; the eminent divines, Rev. James Lloyd Breck and Rev. W. Hobart Hare; Mr. Joseph Wharton, founder of the Wharton School of Finance and Economy; Dr. William Pepper, the present provost of the University; many of the trustees, officers of the University, and others.

"Philo," as the society is affectionately called by the students, is comfortably housed in two large rooms on the top floor of the College Hall, and preserves on her walls many curious mementoes of her past. Chief

among these is a model of the famous Rosetta stone, the publication of an account of which and its decipherment was one of the glories of the society's work. The model stands in a mural glass case, and is accompanied by an autograph letter highly commending the work of the society in philological research from Baron Alexander von Humboldt, dated Berlin, March 12, 1859. However much the scholarship of modern specialists may look askance upon this ambitious undertaking, we can not but commend the zeal of these youthful investigators and the taste displayed in their sumptuous publication of the results of their labors.

It is the custom of the society to hold an annual commencement in June, at which diplomas are awarded to members of the graduating class. Prize contests in debate and essay writing are held each March, and of late years the biennial celebration has become an entertaining feature in the life of the society.

The Zelosophic Society had its origin in a spirit of praiseworthy emulation to rival and if possible surpass the Philomathean. It was founded October 29, 1829, mainly through the efforts of Alexander Dallas Bache, professor in the University from 1828 to 1844. The society enjoyed a long and honorable career, numbering among its active members the Rev. William H. Odenheimer, Bishop of New Jersey; Col. Washington C. Tevis, of the Turkish army; Mr. John B. Gest, president of the Society of the Alumni of the University; Prof. Francis A. Jackson; Charles Stillé, and several prominent trustees, officers of the University, and others. It is interesting to note that this society has been vigorously revived within the last year.

The foundation of literary and debating societies within the University was no unusual matter; but they were generally class organizations and of short continuance. The numerous temporary and informal associations for study among the students need call for no mention here.

For an account of the various Archæological Societies, the Lecture Association, the Society for the Extension of University Teaching, and others, which are all of them rather outgrowths than organizations strictly within the University, the reader must be referred to the various chapters of this work in which each finds special treatment.

While the bibliography of the University will be found elsewhere, there have been a number of publications, arising so peculiarly out of student life, or proceeding from the alumni, that we can not but feel that this is the proper place in which to mention them. As early as 1834 the Zelosophic Magazine appeared under the auspices of the society of that name, and continued from April of that year to August, 1835. It was published bimonthly, and while somewhat "solid" for our present conception of a student's publication, is an exceedingly creditable production. From the records of the two societies it appears it had long been the custom of both to publish—or rather utter—a weekly manuscript paper, which was read by the editor at the meetings of the

societies. To this class of productions belonged the Mummy Monster, which continued from the year 1847 to 1850, and its opponent, the Boule Dogue. Their contents may be described by the single word facetious, and in some shape they have continued in the practice of the Philomathean Society at least ever since. According to the Red and Blue, to whose interesting account of student journalism we are indebted for much of what follows, a small pamphlet bearing the title of Pons Asinorum was published—this time printed—by the Philomathean Society in 1854. Its title sufficiently indicates its character. It never reached a second number.

In March, 1869, a modest little magazine of a very different nature appeared, entitled, "The University, a literary monthly devoted to the interests of the University of Pennsylvania." There is really considerable merit in this publication, and its list of contributors included many prominent names connected with the college department of that date. Unfortunately before The University had succeeded in reaching the nativity of a second issue, a burlesque fac simile in style of print and color of cover, entitled, "The University, a subterranean monthly, devoted, like its mundane predecessor, to bringing its editors before the public," succeeded by the cleverness of its parody and satire in giving the *coup de grace* to its unhappy victim.

Although the Penn Monthly emanated chiefly from University men and was often, if erroneously, regarded as the organ of the University, a consideration of the long career of that highly successful magazine belongs not here, and a mention of it is only justified by the fact that it is likely that its existence for years precluded the necessity of a more purely University publication.

At length, November 1, 1875 the University Magazine was founded by the Philomathean Society as an organ of the students and enjoyed a continued and prosperous career, as a monthly, until 1881, and as a bimonthly until its absorption into its successor, the Pennsylvanian. All honor is due to the liberal policy of the Philomathean Society in thus sacrificing its individual interests to the needs of the students for a newspaper thoroughly representative of the entire University. Contemporary with the University Magazine appeared an illustrated college paper of facetious turn entitled Chaff, which ran successfully from September, 1883, to June, 1885, and was discontinued because no undergraduates could be found willing to continue its publication. The Pennsylvanian had its inception in the desire for a paper more truly representative of the whole body of the students than was possible in any publication of a single society. The Pennsylvanian has appeared weekly since its establishment in December, 1885, and long ably fulfilled its purpose. In March, 1889, The Red and Blue appeared, with the avowed purpose of supplying the literary qualities which the Pennsylvanian had felt compelled to sacrifice largely to its purpose of becoming a purveyor of news. Both papers have since enjoyed a success consistent

with the prosperity of each. Lastly, an able rival to both has arisen in the *University Courier*.

The *University Record*, although published by a committee of each senior class, serves the double purpose of an index and chronicle of the chief events of undergraduate life, and of a sort of literary Saturnalia, in which wits of each class may seek satisfaction for the long restraints of their college course. For the most part decorum has been preserved in these publications, and no policy could be more abhorrent alike to American and University traditions than any attempt on the part of the authorities to restrain them. The earliest *Record* was that of the class of 1872. For the bibliography of the professional schools, and the contributions of members of the various faculties to science, the reader must be referred to the special chapter of this work on the bibliography of the University.

(4) The Musical and Dramatic Societies of the University, which form so interesting a feature of college life, are for the most part of quite recent growth. We are not, however, without traditions of at least two very early performances. In 1757 a number of the students and scholars, with very just applause, performed the *Masque of Alfred*, by way of oratorical exercise, before the Earl of Loudon, and the governors of the several colonies. And at the commencement of 1759, besides "a dialogue and an ode, poems, disputations in Latin and English, and the delivery of theses, music was furnished by the Orpheus Club of the College, and by his Majesty's Marine Band." In short, from time to time throughout the earlier history of the University, the College Glee, and the College Drama, flourished with an intermittent existence. By the year 1876 the College Glee Club had become an established fact, and through many vicissitudes and reorganizations, has continued to the present writing. As early as 1877 a College Orchestra existed, but after a short time it was suffered to lapse into silence; and it was not until January, 1887, that the University Orchestra, a far larger organization, took its place. Few college entertainments are now considered complete without the assistance of these or others of the minor musical bodies. Of the more recent, the University Dramatic Club deserves mention. This society was extremely successful between 1878 and 1886. Of late years, the Mask and Wig, organized on the model of the Hasty Pudding Club of Harvard, has met with unexampled success, and taken college theatricals quite out of the limits of amateur performance.

It is perhaps fitting to speak here of the *Acharnians* of Aristophanes so successfully performed by students of the University, although not within any special dramatic organization. One of the daily papers spoke thus of the first performance, May 14, 1886:

The vitality which attaches to a work of art of the first order has not often more vivid proof than was furnished by the genuine success of this revival, after a lapse of some twenty centuries, for the second recorded representation of the Attic comedy. * * * The success of the representation was complete. Performed as it

was, with brilliant efficiency in every respect, forcibly and intelligently acted, richly mounted and handsomely costumed, the Greek play was a credit to all who were concerned in its performance, and through them to the University of which they were the representatives.

It is interesting to remember that the proceeds of the performance of the *Acharnians* in New York was devoted to the American Classical School at Athens.

(5) The earliest recognition of the value of athletics in the history of the University comes from no less a person than its illustrious founder, Benjamin Franklin. In his "Proposals Relative to the Education of Youth in Pennsylvania," written in 1749, Dr. Franklin utters these memorable words concerning the future student: "To keep them in health and to strengthen and render active their bodies, let them be frequently exercised in running, leaping, wrestling, and swimming." This injunction, however, led to no organization of which we have any knowledge until far later.

In the year 1873 an athletic association was formed among the undergraduates for the purpose of encouraging college athletics in general, but especially what are known as track athletics. This association was incorporated in 1883. Far earlier than this, however, great interest had been shown amongst the students in rowing, a matter attested by the formation of a college boat club in 1854. This association was reorganized in 1872, and incorporated November 13, 1875, and soon after took possession of its present boathouse on the Schuylkill River. This gave a new impetus to rowing interests in the University, which has since continued one of the favorite athletic pastimes of the students. Other sports have flourished at the University; football, played as far back as the sixties, and organized into a regular association soon after 1870; cricket, which has flourished intermittently from a very early time; and others, all of which are carried on by means of fixed organizations among the students at large or those of a particular class, and have led to the formation of a multitude of clubs, interesting to the general reader alone from their indication of the prosperous condition of athletics among the students of the University.

Under a new and recent constitution the active management of athletics is left, as much as possible, in the hands of undergraduates, while a permanent body of graduates is provided to act in an advisory capacity.

All these athletic clubs work in perfect harmony with the Department of Physical Education, which while exercising a wise supervision, seeks not to interfere with the independence of the students in their pastimes. Many intercollegiate societies and leagues exist moreover to which our various athletic associations are parties and by which the opportunity for contest is extended beyond the University itself.

(6) Lastly, we reach associations for purely social purposes, including
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the Greek-letter societies. In the life of a university, associations of this class are of course innumerable and of the greatest possible diversity of character, from the casual group of classmates or other associates to the formal club or fraternity with its completely appointed clubhouse. Opposition to fraternities has never formed part of the policy of the University of Pennsylvania; and it can not be denied that the influence of these societies which has been constant for the last forty years, has done much to foster that *esprit de corps* so valuable to the fullness and profit of university life, and so often lost in colleges domiciled in our great cities.

Upwards of a score of Greek-letter societies have at different times flourished at the University of Pennsylvania, of which four were founded during the period from 1849 to 1854: the rest after 1877. There are at present writing eleven general fraternities; two medical fraternities; one legal fraternity; one dental fraternity; a "sorority," and the recently founded Phi Beta Kappa, to which members of the senior class in the college department are elected for scholarship each year. Several of these societies have handsome clubhouses. Many have permanent organizations and all have well appointed rooms. It is estimated that upwards of 1,700 students of the University have been members of the various Greek-letter societies since 1849.

Whilst the nature of fraternities causes any inquiry into their organization to become an impertinence, it may be remarked that in general these organizations follow the usual details of establishment and management of the more widely known secret societies. In all the social element is the most prominent, but, as we have seen, professional fraternities exist and in not a few of the others is to be found a considerable infusion of the literary spirit. We have already mentioned the value of these societies in fostering that *esprit de corps*, which is the very heart of university life; and to this must be added the spirit of emulation among the fraternities to possess themselves of a membership representative of the scholarship as well as the social and athletic prominence of their members. In the University of Pennsylvania fraternity spirit has never exceeded University spirit. Nothing better indicates this more serious trend than the recent foundation of "the Phi Kappa Sigma Fraternity prize in honor of their founder, Samuel Brown Wylie Mitchell, M. D., of the class of 1852, for the best work in English composition, done during the year by a member of the Sophomore class."

There are besides the above groups a few organizations of very diverse nature, incapable of any classification. Among the number is the chess club, which has existed since very early times. The camera club is of course a comparatively recent organization. Nor has the subject of religion been neglected among the students; for there has always been some more or less formal association amongst them devoted to such matters. A church club was founded in 1889, and in 1890

a branch of the Intercollegiate Young Men's Christian Association was organized and is now in active usefulness.

We have thus before us a brief view of many of the chief organizations in which the students and alumni of the University of Pennsylvania have at different times been banded for those varied pursuits which arise out of the complex elements of the life of a great university. While the outer world hears more of college athletics than of any other college organizations, the most cursory examination of the facts stated above must show that at the University of Pennsylvania, at least, although athletics receive that ample attention which is their due, there is no neglect of the gentler and more scholarly pursuits which arise in hundreds of differing forms from the multiform curriculum of the college and the professional schools. Scholarships, athletics, and good fellowship, are the three elements which, in proper proportion, go to make up the constitution of a healthily constituted academic body; the preponderance of any one is abnormal, and it is only in their perfect equipoise that we can look for the best results. It is to be hoped that an examination of the foregoing pages may have shown that there has long been a clear recognition among the students of the University of Pennsylvania of the proportionate claims of each.

CHAPTER XXVI.

THE ALUMNI OF THE UNIVERSITY.

The subject of the Alumni of the University has been divided into the three heads of the bar, science, and a history of the central committee. But for the lamented death of Prof. J. G. R. McElroy there would have been added to this a history of those distinguished in the church, a rich field for the historian, but one which no other member of the committee feels competent to treat. From the very nature of this work any extended biography was impossible, and the greatest difficulty of the writers has been to avoid doing injustice to the memories of distinguished alumni either by too scant a notice or by omission.

In spite of these honest efforts, however, there is a host of names worthy to command the respect and interest of the world, but which space was lacking to include.

ALUMNI OF THE COLLEGE DEPARTMENT WHO WERE DISTINGUISHED AT THE BAR.¹

The graduates of the University of Pennsylvania, including under that title the College of Philadelphia, by which name the institution was known before it was enlarged to a university, who have distinguished themselves at the bar and on the bench are numerous. In this paper it is proposed to mention some of them whose achievements are worthy of more than a mere passing note.

At the outset we wish to call attention to the fact that as we have been requested to write of alumni of the College (or, as it is now absurdly and clumsily called, the College Department) we have included its graduates only, and have paid no attention whatever to the alumni of the Law School of the University. We wish further to state that it has not been thought proper to enter upon any extended account of any living graduate, not, be it distinctly understood, in obedience to Schiller's advice, "Let the night come before we praise the day," but because to select from the great number of distinguished and reputable members of the bar who claim the College of the University of Pennsylvania as their alma mater any, while excluding others, would be a most invidious and distasteful task.

It is certainly not saying too much, or giving undue credit, to say that no bar in the country has been more distinguished for the attain-

¹ By Henry Budd, A. M.

ments and character of its members than the bar of the city of Philadelphia.

That bar has been very largely supplied and recruited from a very early date from the University of Pennsylvania, and many of the great ones of the Philadelphia bench, Tilghman, Sharswood, Cadwalader, and others have come forth from her, while other of her graduates are found on the bench and in the front ranks of the bar in places far from that in which she imbued them with a liberal education and made them fit to enter upon the study of jurisprudence.

In the very first class graduated by the College, that of 1757, we find one who, excellent lawyer though he was, is, perhaps, even better known as a distinguished patriot in the times when our right to liberty was vindicated and as a charming writer of light and witty productions, Francis Hopkinson, signer of the Declaration of Independence, judge of the admiralty of Pennsylvania and of the United States district court, and author of "The battle of the kegs." Hopkinson was born in Philadelphia in 1737, and was admitted to the bar in 1765. Before the Revolution he was the royal collector for the port of New Castle and was a member of the council of the governor of New Jersey. He lost his appointments, naturally enough, through his devotion to the patriot cause. He was elected to the Continental Congress in 1776, and, as a member of that body, signed the Declaration of Independence. In 1779 he became judge of the admiralty for Pennsylvania. Some of his judgments in admiralty were published in 1789 in a book, of which John William Wallace, in *The Reporters*, says:

The first of these two volumes contains but six cases, which if they are enough to entitle the book to rank as a volume of reports, gives to it perhaps the right of being regarded as the first volume of reports ever published in the United States.

On the organization of the federal judiciary, Judge Hopkinson was appointed by President Washington judge of the United States district court for Pennsylvania. He did not, however, long fill that office, as he died May 9, 1791.

In the next year, 1758, the College had no graduating class, but the class of the year 1759 contributed its full quota to the roll of legal distinction. In it was Andrew Allen, attorney-general of Pennsylvania from 1769 to 1776, recorder of Philadelphia from 1774 to 1776, member of the provincial council of Pennsylvania, and member of the Continental Congress. And William Paea, born in Maryland in 1740 and admitted to the bar in 1760; the next year he became a member of the Provincial Assembly of his native State. He became a delegate to the Continental Congress in 1774 and was a signer of the Declaration of Independence. In 1778 he became chief justice of Maryland and left the bench in 1782, on being elected governor of the State, which office he held until 1786, when he retired to private life, from which he was drawn in 1788 to become a member of the ratification convention of Maryland. In 1789 he was appointed judge of the United States district court for Maryland; he died in 1799.

The next class, 1760, contained Robert Goldsborough, attorney-general of Maryland and member of the Continental Congress.

In 1761 we find Richard Peters, who was born in 1743, entered the Revolutionary army and was a captain therein. He was taken, however, from the field and made secretary of the continental board of war. In 1782 he became a member of Congress, and after the conclusion of the war was a member of the assembly of Pennsylvania and its speaker from 1788 to 1790. In 1790 he became speaker of the State senate and in 1791 was appointed judge of the United States district court for Pennsylvania, which office he held until his death in 1828. In the same class was Jasper Yeates, who was a justice of the supreme court of Pennsylvania from 1791 until his death in 1817, a learned and able judge, whose reports, in four volumes, are amongst the earliest in Pennsylvania, and Abraham Ogden, attorney-general of New Jersey.

In the graduating list for 1763 we meet with the name of John Dickinson Sergeant, attorney-general of Pennsylvania from 1777 to 1780, and a member of the Continental Congress. In 1766, we find James Tilghman, attorney-general of Maryland in 1776 and a judge of the court of appeals of that State from 1804 to 1809.

In 1767 was graduated one of the greatest lawyers of the early history of the country, Edward Tilghman, perhaps the most profoundly learned lawyer, without being a mere scholar and theorist, who has appeared in Pennsylvania; he was born in Maryland in 1750 and died in Philadelphia in 1815; his life was devoted to the bar; the chief-justiceship of the State was offered to and was declined by him, but it would be hard to say whether any office could have heightened the reverence with which his memory is regarded by the profession in Pennsylvania.

Another Tilghman, the great chief justice, is also to be credited to the University. It seems well established that he entered the College, but there is no record of his graduation. Nevertheless, Horace Binney, who knew the chief justice, and who was on terms of intimacy with Edward Tilghman, says in his *Leaders of the Old Bar* that William Tilghman was graduated by the University of Pennsylvania, and in this he is followed by Mr. David Paul Brown in *The Forum*, and when it is remembered that the records of the University about the time at which Tilghman would naturally have been graduated, if at all, were not kept with that care which should distinguish such records, we think that great consideration is due to the statement of Mr. Binney. Tilghman was born in Maryland in 1756; he was admitted to the bar and in 1783 became a member of the legislature of Maryland. In 1801 he was appointed justice of the United States circuit court for the third circuit, but that court, the only one of the circuit courts which came into being under President Adams whose decisions have been honored by preservation in reports, was swept away in a short time on the coming into power of the anti-Federal party. Tilghman then returned to the bar, but in 1805 was made president judge of the common pleas for Philadelphia, from which office he was in 1806 promoted to the chief-

justiceship of the State, after it had been declined by his relative, Edward Tilghman. In this office he made a great reputation, earned by his learning, industry, and ability. In the first ten years of his justiceship he delivered opinions in all but four of the cases which were argued before the court. He remained chief justice until his death in 1827. Speaking of him and referring to his appointment by President Adams, Mr. D. P. Brown says:

He was one of the midnight judges, as they were called, but it may be truly said that no midday judge ever surpassed him in the luster of his official career or will survive him in the memory of all by whom he was known.

The class of 1769 contained John D. Coxe, who was president judge of the court of common pleas of Philadelphia from 1800 to 1806; the class of 1772, Moses Levy, distinguished as a wit as well as a lawyer, who closed a brilliant career as president judge of the district court of Philadelphia from 1822 to 1826.

In 1773 we find Joshua Seney, who was a member of the Continental Congress, and also of the Congress of the United States after the adoption of the Constitution; in 1775, Henry Ridgely, chief justice of the fourth judicial district of Maryland from 1796 to 1806, and judge of the third district from 1806 until his death in 1811; in 1776, William Coker, judge of a circuit court in Tennessee and United States Senator from that State from 1796 to 1805.

In 1780 was graduated Samuel Sitgreaves, a member of Congress from 1795 to 1798, and in 1793 a commissioner under the treaty with Great Britain.

The class of 1782 contained Joseph Borden McKean, attorney-general of Pennsylvania from 1800 to 1808, and afterwards president judge of the district court of Philadelphia, and James Kelly and William Kennedy, both members of Congress.

In 1786 the name of Joseph Hopkinson, a son of Francis Hopkinson, who seems to have inherited both the legal and literary ability of his father, appears. He was born in Philadelphia in 1770 and began the practice of law at Easton; he soon, however, returned to Philadelphia and rapidly acquired distinction at the bar. He was counsel for Dr. Rush in his libel suit against Cobbett, and for Judge Chase when impeached before the Senate of the United States. In 1815 he entered Congress and served until 1819. In 1828 he was appointed judge of the United States district court for the eastern district of Pennsylvania, which office he held at the time of his death in 1842. He was a man of fine artistic and scientific tastes and of literary ability. He was president of the Pennsylvania Academy of the Fine Arts, a member of the American Philosophical Society, and we owe to him the national anthem Hail Columbia. In the same class was Robert Porter, a president judge of the common pleas in Pennsylvania, and Jonathan William Condy, who was clerk of the House of Representatives from 1797 to 1800.

In 1787 we find George Duffield, judge of the United States court for the Territory of Orleans in 1805. In 1789 Caesar Augustus Rodney,

Attorney-General of the United States from 1807 to 1811, member of Congress, United States Senator, and United States minister to Buenos Ayres, in which place he died; in 1791 Joseph Hemphill, who was president judge of the district court of Philadelphia in 1811 and member of Congress for several terms.

The class of 1792 contained Frederick Smith, attorney-general of Pennsylvania from 1823 to 1828, and justice of the supreme court of that State from 1828 until his death in 1830; David B. Ogden, of New York, and Bird Wilson, who, after rising to the bench, abandoned the law for the church, and was for many years professor in the General Theological Seminary in the city of New York.

In 1795 we find the distinguished lawyer Zalegman Phillips; in 1803 John Fox, president judge of the Bucks County circuit in Pennsylvania; in 1805 Thomas Kittera, who became a member of Congress; in 1807 Thomas I. Wharton; in 1808 Charles Sydney Coxe, a judge of the district court of Philadelphia from 1826 to 1835, and Philemon Dickerson, member of Congress, chancellor and governor of New Jersey, and judge of the United States district court for New Jersey.

In 1811 was graduated Richard Biddle, who, going from Philadelphia, found distinction at the Pittsburg bar, and who was a member of Congress from 1837 to 1840.

The class of 1812 had upon its rolls one of the most accomplished lawyers that the United States have produced, William M. Meredith, who at the Philadelphia bar, was long a standing encouragement to those industrious and studious members of the profession whom success did not early reward. For many years after coming to the bar Mr. Meredith toiled early and late, studied hard, and was almost clientless, but his time came at last, his abilities were recognized as of superior order, and he became the leader of the bar of his city, Secretary of the Treasury of the United States, attorney-general of Pennsylvania, and president of its constitutional convention of 1873. When the counsel were selected to represent the United States at the Geneva arbitration, Mr. Meredith was asked by President Grant to be one of them, but declined on account of his age and not very robust health. This declination was very much regretted, as there was perhaps no man in the United States better fitted, by his vast and ready knowledge and long course of training in both public and private law, to present and uphold the American cause before the memorable tribunal whose action dispensed with all necessity for a resort to arms to enforce our just claims. The reverence with which Mr. Meredith was regarded by his brethren toward the close of his long professional career was very marked, and it was an impressive sight to see the court and bar hanging on his words as they proceeded from his lips in feeble tone, but bearing the stamp of mental force, while profound silence reigned in the court room. Mr. Meredith died in 1873, while president of the convention which framed the present constitution of Pennsylvania. In

the same class with Mr. Meredith was John M. Read, who had a very successful career both at the bar and on the bench; he became attorney-general of Pennsylvania in 1846, a justice of the supreme court of Pennsylvania in 1860, and chief justice in 1873. He died in 1875.

In the class of 1815 were Thomas McKean Pettit, judge of the district court of Philadelphia from 1831 to 1835, and president thereof from 1835 to 1845, and Edward Rawle, a judge of a court in New Orleans.

In 1817 we find John N. Conyngham, a president judge of the common pleas in Pennsylvania, and in 1818 James Murray Mason, of Virginia, who was a Senator from that State, and afterwards so prominent a statesman upon the Confederate side during the Civil war.

The class of 1819 bore upon its list two men of high distinction, Henry Dilworth Gilpin and Robert James Walker. The former came to the bar in 1822, and was in 1832 appointed United States district attorney for Pennsylvania, E. D.; in 1837 Solicitor of the Treasury, and in 1840 Attorney-General of the United States. At the close of President Van Buren's term Mr. Gilpin retired from public life and devoted the rest of his days to his profession, history, art, and general literature, to all of which he made valuable contributions, and to travel. He died at the age of 59, leaving behind him a most enviable reputation. Robert J. Walker, the author of the Walker Tariff, and one of the few great statesmen that our country has produced, was United States Senator from Mississippi, Secretary of the Treasury, and governor of Kansas Territory. The only professional appointment held by Mr. Walker seems to have been the reportership of the supreme court of Mississippi, but he was in good practice and concerned in important cases, amongst others in the case of *Grover v. Slaughter*, in which he was of counsel for the Government, as the colleague of his classmate, Mr. Gilpin.

In 1820 were Joseph M. Doran, a judge of the common pleas of Philadelphia from 1840 to 1843, and Francis J. Troubat, one of the authors of the standard work on Pennsylvania practice known as *Troubat and Haly's Practice*.

In the class of the next year we meet with a judge of most remarkable character, learning, courage, and ability, John Cadwalader, who was born in Philadelphia in 1805, came in due time to the bar, and speedily became a leader, being engaged in a great number of most important cases. While still a junior he was engaged in the great divorce case of *Butler v. Butler* as junior for the respondent, Col. Pierce Butler. In that case were counsel of the highest order; amongst others George M. Dallas, Rufus Choate, and William M. Meredith, and the writer has been told by one of the judges who tried the cause that the great success of the case was that obtained by Mr. Cadwalader, especially in his cross-examination of Mrs. Butler (Fanny Kemble). In 1857, after a term in Congress, Mr. Cadwalader left the bar for the bench,

having been appointed by Mr. Buchanan United States district judge for Pennsylvania, E. D. The breaking out of the war threw before our courts topics with which they had not before had to deal and subjected them to a severe test, and in the opinion of competent authority it is not too much to say that although a judge of first instance, Cadwalader's was the leading mind in determining our judicial policy upon questions of prize during the rebellion. Judge Cadwalader remained upon the bench until his death in 1879, and was regarded by many as a model judge, and all, even of those who mistakenly, it seems to us, considered him arbitrary, venerated his great learning, his untiring industry, his uncompromising fairness, and his dauntless courage. To us Cadwalader seems to really fill the requirements of a truly great judge.

In the same class were Anthony Laussat, a most promising young lawyer, the author of a work on equity in Pennsylvania, whose early death was greatly regretted, and in whose memory the Law Academy of Philadelphia founded a prize; John Richter Jones, a judge of the court of common pleas of Philadelphia, who fell at Gum Swamp, N. C., fight for the Union as colonel of a Pennsylvania regiment, and Isaac Norris, who lived to be the senior member of the Philadelphia bar and died in 1890.

In 1822 we meet with Jonas Altamont Phillips, a very able lawyer.

In 1823 were graduated Persifor Frazer Smith, reporter of the supreme court of Pennsylvania from 1866 to 1880, and George Mifflin Wharton, a lawyer of superlative abilities. The only office held by Mr. Wharton was the United States district attorneyship for Pennsylvania, E. D., from 1857 to 1860.

In the class of 1828 was George Sharswood, one of the greatest judges who have adorned the Pennsylvania bench, and whose reputation is greater than that of any of her chief-justices, except Gibson and Tilghman (and it is questionable whether he ought not to be ranked higher than the latter); a man who combined the qualities of a profound jurist, erudite scholar, original thinker, and great judge at *nisi prius*, where the strongest qualities of both man and judge are required to attain distinction, where, with profound learning, must go quickness of decision and power of applying properly that learning, and where, with all, there must be a thorough knowledge of men and human nature, coupled with self-control and personal dignity.

Sharswood was born in 1810, in due time came to the bar, and, after a short career in the legislature, was appointed a judge of the district court of Philadelphia, a court in which, at that time, all the common-law cases, except those of minor importance, and the Federal cases of that great community were tried. In 1848 he was promoted to the presidency of the court, which soon became a model for the prompt dispatch of business and the satisfactory manner in which its cases were tried. In 1867 Judge Sharswood was elected to the supreme

court, and in 1878 became chief justice of Pennsylvania. He retired in 1882, and shortly after, in 1883, died. Such is a brief summary of his judicial life, but it gives little idea of his work. Besides his labors in law and in political science, he in 1850 reëstablished the Law School of the University of Pennsylvania, in which legal education had been in abeyance since the death of Judge Wilson in 1798, and remained a professor in that school until 1868.

His legal writings are numerous. The best known are perhaps his *Legal Ethics* and his edition of *Blackstone*; beside these he edited *Byles on Bills*, *Russell on Crimes*, *Starkie on Evidence*, and many other books. The last work with which his name is associated is *Sharswood and Budd's Leading Cases in the American Law of Real Property*. By the plan of this work Judge Sharswood was to have reviewed the work of his colleague, and he did read the manuscript of the first volume, but before the second was fairly under way death deprived the junior editor of the invaluable aid of the great lawyer.

He died, and his death left a great gap in Philadelphia legal society as well as in the ranks of American jurists, for few men were so well loved at the same time that they were honored as was Chief-Justice Sharswood.

In the class of 1831 we have George Augustus Bicknell, judge of the second judicial circuit of Indiana from 1852 to 1876, chief of the commission of the supreme court in 1881, professor of law in the University of Indiana from 1861 to 1880, and member of Congress from 1877 to 1880, and Charles E. Lex, a highly honored member of the Philadelphia bar.

In 1832 was graduated St. George Tucker Campbell, a most distinguished lawyer; in 1833, William Todd Otto, judge of the circuit court of Indiana, professor in the law school of the university of the same State, arbitrator on the part of the United States under the convention with Spain in 1871, and reporter of the Supreme Court of the United States. In the same class was John William Wallace, Mr. Otto's predecessor in the reportership, president of the Historical Society of Pennsylvania and author of several legal writings, including that delightful book, *The Reporters*. Mr. Wallace died in 1884.

In 1834 we have J. I. Clark Hare, president judge of the district court and of the court of common pleas No. 2, of Philadelphia, and from 1868 to 1889 professor in the Law School of the University of Pennsylvania. In 1837, Theodore Cuyler, in his day a leader of the Philadelphia bar and perhaps the foremost railroad lawyer in the country. In 1839, John V. Eustace, judge of the circuit court for the thirteenth district of Illinois, and in the next year, 1840, Martin Russell Thayer, member of Congress, a judge of the district court of Philadelphia and president judge of the court of common pleas No. 4 thereof; in 1841, Benjamin Markley Boyer, a member of Congress, a president judge of the common pleas in Pennsylvania from 1883 until his death in 1887; Frederick

Carroll Brewster, judge of the common pleas of Philadelphia and attorney-general of Pennsylvania, and William Henry Rawle, so well known for his learning, and whose Covenants for Title established for him a reputation at almost the very outset of his career. In 1843 we have Thomas K. Finletter, president judge of the court of common pleas No. 3 of Philadelphia, and James R. Ludlow, long Judge Finletter's colleague on the bench and his predecessor in the presidency of the court, who died in 1886 after a judicial service of thirty-one years. The class of 1844 contained Thomas W. Greenbank, a judge of the district court of Philadelphia; 1849, Christopher Magee, a judge of the common pleas for Allegheny County, Pa.; 1850, Clement B. Penrose, judge of the orphans' court, of Philadelphia; 1855, E. Coppee Mitchell, dean of the Law School of the University of Pennsylvania and a well-known writer and editor, especially of works on the law of real estate; 1858, George Tucker Bispham, professor in and, for a short time, dean of the same school; in 1860, another professor and dean of the same school, C. Stuart Patterson; and 1865, Henry Reed, a judge of the court of common pleas No. 3 of Philadelphia, and Thomas Mitchell, judge of the first judicial district of Colorado.

ALUMNI OF THE UNIVERSITY WHO WERE DISTINGUISHED IN SCIENCE.¹

In considering the question of the contributions to science by the graduates of the University of Pennsylvania, it must be conceded that in its early years there was a greater incentive to scientific research in Philadelphia than elsewhere on the continent.

It was here that Franklin had conducted experiments on electricity, assisted by the researches of Ebenezer Kinnersley, which excited the attention of the whole civilized world. It was here that his famous speculations on a host of other subjects were made.

Here Rittenhouse had observed the transit of Venus, and given "the first approximately accurate results in the measurement of the spheres to the world." Benjamin Rush had made the city's name famous throughout the world as the seat of the highest medical culture. Here Oliver Evans constructed his "Oruktor Amphibolos," and first on this continent propelled a carriage on land by the use of steam.

With such stimulus to activity in science and the application of science to the arts, with the American Philosophical Society, also founded by Franklin to encourage and publish the labors of scientific men, there ought in fact to appear a notable proportion of scientific men among the graduates and matriculates of the University of Pennsylvania.

This is the case, but owing to the absence of special courses at this date facilitating the study of natural history, physics, or chemistry, those

¹ By Persifor Frazer, Dr. es. Sc.

who had aspirations to science were attracted to the study of medicine. Consequently the workers in science, so called nowadays, were almost exclusively physicians. The real difficulty lies in ascertaining the part which many students of law, letters, and theology, many statesmen and men of business, really took in the establishment of some of those brilliant generalizations which distinguished the early days of this century from any previous epoch.

It was well said by one of the leaders of English scientific thought, when speaking of the achievements of Rittenhouse, that they "were given to the world not by the schooled and salaried astronomers who watched from the magnificent royal observatories of Europe, but by unpaid amateurs and devotees to science in the youthful province of Pennsylvania."

Any attempt at an exhaustive statement of what the alumni of the University have done must, in the absence of complete records, wrong by neglect almost as many as it honors.

It is fitting, however, that here and there a name should be taken as an example without pretending that there were not contemporaries both known and now unknown whose services were as valuable.

First among the list of distinguished names is that of Dr. John Morgan, a graduate of the College of Philadelphia (now University of Pennsylvania) in 1757, who studied and served an apprenticeship of six years with Dr. John Redman. Three years after his graduation he went to London and attended the clinics of Dr. William Hunter. He took the degree of M. D. in Edinburgh in 1763, after a two years' course there, and studied anatomy in Paris in 1764, receiving for his treatise on "The Art of Making Anatomical Preparations by Corrosion" the reward of membership in the Royal Society. In 1765, after having been made a licentiate of the College of Physicians in London, he returned to America, and assisted in founding that medical school in connection with our then embryo University which has ever since been one of the objects of pride of the State and of the United States. It was to him that a separation of pharmacy from the practice of medicine was due. In October, 1775, he was appointed by Congress physician-in-chief to the American Army, director-general of the hospitals (see *Early History of Medicine in Philadelphia*, by Dr. George W. Norris, Phila., 1886).

The Rev. Hugh Williamson, born in West Nottingham, Pa., one of the graduates of the first year of the University, like the preceding, after leaving the institution in 1757, studied theology and was admitted to the Philadelphia Presbytery, was professor of mathematics in the College of Philadelphia, subsequently studied medicine at Edinburgh and Utrecht, at which latter University he took his degree. He was appointed by the American Philosophical Society in 1769 a member of the commission to observe the transit of Venus and Mercury. He left behind him valuable treatises on subjects connected with political economy, philology, astronomy, history, and climatology.

James Cannon, who graduated in 1767, was professor of mathematics in the College of Philadelphia from 1773 to 1779, and in the University of the State of Pennsylvania, into which it was merged, from 1779 to 1782. He rendered eminent services to his country (like both the preceding) as a member of the constitutional convention, member of the committee of safety of Pennsylvania, and member of the council of safety of Pennsylvania.

Dr. Benjamin Duffield was surgeon in the American Army, member of the American Philosophical Society, and fellow of the College of Physicians of Philadelphia.

Rev. Robert Davidson, D. D., graduated in the University of Pennsylvania in 1771, and in addition to his talents and cultivation as professor of belles-lettres there, and first vice-president of Dickinson College, he was the inventor of a cosmosphere or compound globe, and published an *Epitome of Geography in verse* for the use of schools (1784).

Philip Syng Physick, M. D. This distinguished Philadelphian and University of Pennsylvania alumnus, called "the father of American surgery," will necessarily be noticed in another place, as his eminent medical researches, especially in yellow fever, entitle him to be. It would, however, be impossible to overlook his important contributions to original research and pure science in any list, however desultory, of those who have honored their Alma Mater in the field of science. He received his license to practice from the Royal College of Surgeons in London, and his degree from the University of Edinburgh before returning to Philadelphia. During the yellow fever epidemics of 1793 and 1797 he exhibited the utmost devotion to duty and disregard of personal safety, remaining at his post until stricken down with the scourge on both occasions, and pursuing his investigations into the nature of the disease by repeated dissections of the victims of the plague for the purpose of tracing the fever to its origin and understanding its relations. He was among the first to raise the standard of the Philadelphia physician to the high point which it has ever since occupied.

James Woodhouse, M. D., born in Philadelphia November 17, 1770, graduated from the Department of Arts of the University in 1787, and from its Medical Department in 1792, and was surgeon to Gen. Arthur St. Clair's expedition against the Indians in 1791. In 1795 Joseph Priestley having declined to accept the chair of chemistry in the University, Dr. Woodhouse was elected to and held it till his death in 1809. He was a member of the American Philosophical Society, and published a number of works of great value, including *Dissertation on the Chemical and Medical Properties of the Persimmon Tree*; *Observations on the Combinations of Acids, Bitters, and Astringents*; *Answer to Dr. Priestley's Considerations on the Doctrine of Phlogiston and the Decomposition of Water* (1794); *Young Chemist's Pocket Companion*, and *Experiments and Observations on the Vegetation of Plants*.

Thomas Tickell Hewson, A. M., M. D., was born in London, graduated from the College Department in 1789, and held many prominent medical positions in the prison, in the College of Physicians, as professor of comparative anatomy in the University, and in the Pennsylvania hospital. He was president of the American Philosophical Society and of the College of Physicians from 1835 to 1848, the year of his death. He took an important part in the establishment of the National Pharmacopæia.

George Izard, major-general U. S. Army, was born in South Carolina in 1777, graduated in the University of Pennsylvania in 1792, and after a sojourn in Europe was appointed a lieutenant in the U. S. Army in 1794. He was engineer of the fortifications in Charleston in 1798, resigned, was reappointed, and made successively colonel during the war of 1812, and subsequently brigadier-general and major-general. He was afterwards governor of Arkansas from 1825 to 1828, when he died.

Robert Maskell Patterson, M. D., born in Philadelphia 1787, died in 1854. He graduated from the College 1804, and in the Medical Department 1808; studied in Paris, and in 1811 took a course of chemistry under Sir Humphrey Davy. He was made professor of natural philosophy, chemistry, and mathematics in the University of Pennsylvania, of which he was vice-provost from 1814 to 1828, and director of the mint from 1835 to 1851. He was elected a member of the American Philosophical Society at the age of 22 years, and was president of it from 1845 to 1853. He was one of the founders of the Franklin Institute, and of the Musical Fund Society.

Jacob Green was born in Philadelphia 1790; graduated 1807. He made, as a boy, a large collection of plants; he wrote a treatise on electricity which was well thought of; studied law and began practice, but abandoned it for chemistry, natural philosophy, and natural history in Princeton (College of New Jersey). In 1822 he became professor of chemistry in Jefferson Medical College, and was granted the degree of M. D. from Yale in 1827. He produced Chemical Diagrams, Chemical Philosophy, Astronomical Recreations, Trilobites, The Botany of the United States, and Diseases of the Skin.

Franklin Bache, M. D., great grandson of Benjamin Franklin, was born in Philadelphia, October 25, 1792, and died March 19, 1864. He graduated from the department of arts in 1810, and passed his medical examination at the University 1814. After serving in the U. S. Army for two years he practiced in Philadelphia; became professor of chemistry in the Franklin Institute (1826 to 1832), and in the Philadelphia College of Pharmacy (1831 to 1841). From 1841 till his death he was professor of chemistry in Jefferson Medical College.

In 1819 he published a System of Chemistry for the Use of Students of Medicine, and in connection with Dr. George Wood he published a Pharmacopæia in 1830, which was adopted by a national convention of physicians. In 1833 this publication became the United States Pharmacopæia and United States Dispensatory, which he ed-

ited with Dr. Wood till his death. He published and edited many other works and contributed many articles to scientific journals. He was president of the American Philosophical Society in 1854 and 1855, and was one of the editors of the North American Medical and Surgical Journal.

George Bacon Wood, M. D., LL. D., was born in Greenwich, N. J., in 1797, and died in Philadelphia 1879; graduated from the Department of Arts in 1815 and in medicine 1818. He was professor of chemistry in the Philadelphia College of Pharmacy (1821-'31), of materia medica (1831-'35), and in the University of Pennsylvania 1835 to 1850, and of theory and practice of medicine 1850 to 1860. In 1865 he endowed an auxiliary faculty of medicine in the University, and by his will he endowed the Peter Hahn ward of the University hospital. He was president of the College of Physicians for many years, and of the American Philosophical Society from 1859 till his death. He edited the United States Pharmacopœia with Dr. Franklin Bache and wrote many treatises on medical subjects. His reputation as a master of medical botany was national.

Isaac Hays, M. D., was born in Philadelphia 1796; died there 1879. He graduated from the College Department 1816 and took his medical degree 1820. He was a physician of great learning and distinction and especially in ophthalmology was preëminent. He joined the staff of the Journal of the Medical and Physical Sciences, and became in the same year its sole editor, retaining this position until 1869. In 1843 he established the Medical News, and in 1874 the Monthly Abstract of Medical Science, both in Philadelphia. He was president of the Academy of Natural Sciences from 1865 to 1869 and one of the founders and long secretary of the Franklin Institute. He edited many valuable medical works.

William Hypolitus Keating was born in Wilmington, Del., 1799, and died in London 1840. He graduated at the College in 1816, and pursued chemical and mineralogical studies in Europe. On returning he was appointed Professor of Chemistry and Mineralogy in the University of Pennsylvania and held this chair from 1822 to 1827. He opened the first laboratory in the old University. His efforts together with those of Mr. Merriek and others led to the founding of the Franklin Institute in 1824. He afterwards read law and practiced with success.

James M. Staughton, M. D., was born in Bordentown, N. J., in 1800, and died in Cincinnati in 1833. Graduated from the College Department, and took his medical degree in 1821. He was elected professor of chemistry and geology in Columbian College, D. C., where he afterwards served as Professor of Surgery, from 1821 to 1830. He afterwards filled the chair of surgery in a medical college in Ohio.

George Washington Norris, M. D., was born in Philadelphia in 1808, and died there in 1875. He graduated in letters in 1827 and in medicine in 1830. He subsequently studied in Paris. In 1836 he was elected one

of the surgeons of the Pennsylvania hospital, which post he filled for twenty-seven years. In 1848 he was elected clinical professor of surgery of the University of Pennsylvania, resigning in 1857, when he was elected a trustee. He was vice-president of the College of Physicians, and president of the Historical Society of Pennsylvania. His papers and contributions to the current medical science of his day were numerous and important.

Edward Miller, C. E., was born in Philadelphia in 1811, and graduated in the College in 1828, at the age of 17. He immediately entered the engineer corps of the Lehigh Canal, was chief engineer of the Pennsylvania Railroad on the retirement of Mr. J. Edgar Thompson, and was active in engineering till his death in 1872.

James Curtis Booth was born in Philadelphia, 1810, and graduated in the College in 1829. In 1832 he studied chemistry in Wöhler's private laboratory in Cassel. He afterward studied under Magnus at Berlin and in Vienna.

In 1836 he established at Philadelphia the first laboratory in the United States for instruction in chemistry. He was in this year appointed professor of applied chemistry in the Franklin Institute. In 1849 he was appointed melter and refiner in the U. S. mint at Philadelphia. His works were the first annual report of the Delaware Geological Survey (1839), *Memoirs of the Geological Survey of the State of Delaware*, (1841), *Encyclopedia of Chemistry*, etc. He was president of the American Chemical Society during 1884-'85, and professor of chemistry of the Horticultural Society of Pennsylvania.

John Fries Frazer, LL. D., was born in Philadelphia, 1812; shared the first honor with Rev. James Clark on graduation, in 1830; was assistant to Prof. A. D. Bache and later to Prof. Robt. Hare. He studied law and medicine. In 1836 he became first assistant geologist to Prof. H. D. Rogers in the geological survey of Pennsylvania. In 1838, he was professor of natural philosophy and chemistry in the Philadelphia high school. In 1844, he took the chair in the University of Pennsylvania, of the same title, vacated by the resignation of Prof. Bache, which he held till his death, in 1872. He was vice-provost from 1855 to 1868; professor of chemistry and editor of *Franklin Institute Journal* from 1855 to 1866; was vice-president of the American Philosophical Society in 1855 and one of the founders of the National Academy of Science. He received the degree of LL. D. from Harvard in 1857. He wrote many treatises in pamphlet form for the use of the classes, but did not publish in permanent form. As examples may be cited his *Mechanics*, *Heat*, *Light*, *The Steam Engine*, *Sound*, etc.

John Neill, M. D., was born in Philadelphia, 1819, and graduated in the College in 1837 and in medicine in 1840. He was appointed demonstrator in anatomy in 1842, and elected to Will's Hospital in 1847, and after filling various important and responsible positions in other places, took charge of and organized the Philadelphia military hospitals

in 1861. In 1862 he was appointed surgeon of U. S. Volunteers. In 1863 was medical director of the Pennsylvania troops, and brevetted lieutenant colonel for meritorious services. He wrote Neill on the Veins, and, together with Dr. F. G. Smith, Neill and Smith's Compend of Medicine.

Many of the names which would naturally follow the present list are of distinguished scientific men yet living, whom, for that reason, we omit here. Among those who are deceased should be mentioned Dr. Joseph Beale, Surgeon-General U. S. Navy, Dr. Henry Hollingsworth Smith, Dr. Francis Gurney Smith, Dr. Chas. M. Wetherill, Dr. James Howell Hutchinson, Mr. Henry Carvill Lewis, and Mr. Chas. A. Ashburner, all of whom upheld the character of their University in the the various callings in life which they selected.

Equally valuable to the institution has been the labor of some of her still living and distinguished sons, among whom should be mentioned Dr. Alfred Stillé, Dr. James Reese, Prof. Peter Lesley, Dr. Chas. M. Cresson, Mr. Edward Goodfellow, Dr. Isaac Norris, jr., Mr. Fairman Rogers, Prof. Henry Morton, Dr. William F. Norris, Prof. Benjamin W. Frazier, Dr. Wm. Pepper, Dr. H. C. Chapman, and Mr. Howard Murphy.

For obvious reasons it is not designed here to record these most honorable, but as yet uncompleted records.

In conclusion a few of those must be mentioned who, although not strictly within the meaning of the word alumni, were matriculates who passed several years at the University, and whose careers were influenced by their association with it. Such were Gen. John Clifford Pemberton (matriculated 1830), Dr. Meredith Clymer (1832), Dr. William Holme Van Buren (1834), Gen. George B. McClellan (1840), Gen. Thomas Hewson Neill (1841), Gen. John Grubb Parke (1843), Dr. Silas Weir Mitchell (1844), Mr. Thomas H. Garrett, Dr. Thos. G. Morton, Mr. Chas. M. Bache, Dr. Isaac Newton Himes, Prof. Lewis Muhlenberg Haupt. With such an array of men, some of whom have taken a partial and others a full college course, the University of Pennsylvania can not be charged with failure to contribute her share of the workers and thinkers of the nation.

THE CENTRAL COMMITTEE OF THE ALUMNI.¹

The alumni of the University of Pennsylvania had for many years been desirous of taking greater interest in the institution of which they were graduates and of obtaining in some way greater recognition by the governing body. In the year 1881 representatives of the three alumni societies of the arts, medicine, and law met at the suggestion of Provost Pepper for the purpose of considering the subject and seeing if it was not possible to have such powers conferred upon the alumni

¹ By J. Sergeant Price, A. M.

as would place them in a position to make their influence felt throughout all the different departments of the University. A special committee of their number was appointed to present the matter to the trustees of the University, and after a number of conferences with them it was decided that the alumni should organize a representative body, to be called the Central Committee of the Alumni of the University of Pennsylvania. This body was granted the privilege of making a limited number of nominations for every third vacancy that should occur in the Board of Trustees, from which the board should make a selection. It was also intrusted with the special duty of attending from time to time upon the various examinations, recitations, and other exercises of the several departments, and of conferring with the members of the different faculties in order to recommend to the trustees such changes and improvements as should be deemed advisable. The following is the plan of organization of the central committee:

(1) The Central Committee of the Alumni of the University of Pennsylvania shall consist of thirty members, six to be elected annually, to serve for a term of five years, by the duly qualified electors voting by ballot, in person, on commencement day, in the city of Philadelphia.

(2) Of the six so elected two shall be representatives and graduates of the Collegiate Departments of at least three years' standing, two shall be graduates and representatives of the Medical and Collateral Departments, and two graduates and representatives of the Law Department.

(3) Any person who has received a degree, honorary or otherwise, from the University, shall be a duly qualified elector, except those who are members of the Board of Trustees, or other officers of government or instruction in the University, none of whom shall be eligible as members of the central committee or entitled to vote at the election of said members.

(4) The central committee shall annually appoint one principal and two or more assistant inspectors of polls, who shall, on commencement day, from 10 o'clock a. m. until 4 o'clock p. m., at some place in said city of Philadelphia fixed by said committee, receive the votes for members of the committee, and they shall sort and count such votes, and make public declaration thereof after the closing of the polls; and said inspectors shall be provided with a complete list of the persons qualified to vote at such election, and no person shall vote until the inspectors find and check his name upon such list. The names of the persons voted for, the number of votes received for each person, and the vacancy or place in said committee for which he is proposed, shall be entered by said inspectors upon a record kept by them for that purpose, which shall, after such election, be forthwith made up, signed, and delivered by them to the central committee. In case any person not eligible to membership in the committee is voted for, his name shall not be counted in making up the returns. The persons receiving the high-

est number of votes for the places or vacancies in each of the three sections of the committee shall, to the number of members to be elected, be deemed and declared by said committee elected members thereof.

(5) The central committee shall give notice of the place of the polls, the hours during which they are open, the number of members to be elected, and the terms for which they are to serve, together with a list of the twelve candidates, four in each section, who received the highest number of votes at the last nomination, by publishing the same, at least ten days before commencement, in a newspaper or newspapers printed in the city of Philadelphia.

(6) The terms of office of each class of members of the central committee shall extend to the close of commencement day of the year in which such terms severally expire, and the members elected on any commencement day shall supply the places of the class of members that goes out of office at the close of that day, and the vacancies then existing in the committee. Whenever there is a failure on commencement day to supply any places or vacancies in the committee, the same may be filled by vote of the remaining members of the committee.

(7) In order to secure nominations for the ensuing election, the central committee shall annually select eighteen persons (six for each section) eligible to membership in the committee, and shall send on or before April 15 to all the qualified electors that can be reached through the post-office, a printed list of the persons so chosen, together with a list of the vacancies to be filled. Each elector receiving such lists shall nominate candidates to a number not exceeding the number of vacancies to be filled, either by striking out the names of all the other persons on the list, except those he desires to nominate, or by inserting new ones, and shall return such amended list to the central committee before May 15. The persons receiving in this way the highest number of nominations in each section, to the number of twice the number of vacancies to be filled, shall be considered the regular nominees of the alumni, and as such their names shall be published by the committee at the time of announcing the place and time of holding the election, as hereinbefore provided. At the election, however, the electors shall have the privilege of voting either for these or for any other duly qualified persons they may select.

(8) The central committee thus constituted shall have and enjoy the powers and privileges conferred upon it by the Board of Trustees of the University contained in the plan adopted by them December 6, 1881, and such other powers and privileges as may hereafter from time to time be conferred upon it by the board.

(9) The officers of the committee shall be a president, a secretary, and a treasurer, to be elected annually at such time and in such manner as the committee may determine. The committee shall adopt such by-laws, rules and regulations for its own government and the transaction of business as it may deem expedient.

The above plan of organization was duly approved by resolution of the Board of Trustees adopted at a meeting held March 7, 1882, as follows:

Resolved, That the trustees of the University of Pennsylvania do approve of the articles of association of the central committee of the alumni of the University, as submitted to the Board of Trustees this day, and do hereby invest said committee with all the rights, privileges, and functions therein expressed, subject to all the provisions in the charter and statutes of the University now in force, and the statutes of the said trustees which may be hereafter ordained.

The first election of members of the central committee under this plan of organization was held in June, 1882, and since that time the committee has been active in its work and awakened a lively interest among those connected with the institution. Several of the older members of the Board of Trustees have passed away, and the committee has been called upon to nominate four of their successors, so that already the alumni are directly represented by several of the most active members of the board. Many of the recent changes that have taken place in the details of the curriculum and administrative affairs have been promoted by the efforts of the central committee to secure the adoption of the latest improvements in University work, and with the steady growth in interest on the part of the alumni in this method of making themselves felt for the welfare of the University, the usefulness of this representative body will proportionately increase.

CHAPTER XXVII.

THE BIBLIOGRAPHY OF THE UNIVERSITY.

A mere catalogue of the literary productions of the University staff during the one hundred and thirty-eight years since its beginning would occupy more than the space allotted to this volume, and the making of such a catalogue would be, of course, impracticable. All that can be done in a single chapter is to indicate by examples the character and range of the literary work which may be justly claimed to illustrate the intellectual life of the organization, and thus to show that the University has not only fulfilled its direct mission of instruction to its students, but has also been the fountain of a far more widely spreading influence through the publications of its teachers. Nor should we be restricted in our survey only to the teaching staff. The government of a university must be in the hands of men among whom shall be found those of such culture and learning that they may be competent to select professors, approve the curriculum, and judge the character of the educational work. From such men a measure of literary activity may be expected; and in point of fact a very important part of the bibliography of the University consists of the writings of those whose relations to it were those of trustees. The founder himself is the first, and one of the best, examples. No one of his age was more industrious with the pen or wielded a larger influence upon the thought of his time, and when it is remembered that a complete edition of his works extends to ten volumes, and embraces no less than three hundred books and papers exclusive of correspondence, and that a good proportion of these were connected with or grew out of his associations with the College, his works may well be quoted as the beginning of our bibliography. The Hon. Francis Hopkinson was a trustee and an accomplished writer. His works were collected in 1792 in three volumes of essays and occasional writings, largely of the satirical sort. His *Battle of the Kegs* was a popular ballad, and his *Essay on Whitewashing* was for some time attributed to Franklin. Among his keenest satires is one entitled *Modern Learning Exemplified by a Specimen of a Collegiate Examination*. The venerable Bishop White was the author of *The Calvinistic and American Controversy* (1817) and of *Memoirs of the Protestant Episcopal Church*, as well as of innumerable sermons and addresses. As the long succession is unrolled there is a constant reminder of men who contributed to the political or professional literature of their day while active as trustees. The *Notes on the Old and New Testaments* (eleven volumes) by

the Rev. Albert Barnes were of high reputation. Bishop William Bacon Stevens was the historian of Georgia (two volumes) and wrote Parables of the New Testament and many minor works. The Rev. Richard Newton, LL. D., was preëminently the religious teacher of children, whose Rills from the Fountain of Life have penetrated into every land and been translated into nearly every tongue. The Rev. Charles W. Schaeffer, D. D., besides his translation of the Halle Reports, is an industrious theological writer. The Rev. George Dana Boardman, LL. D., is a most prolific writer, whose University Lectures on the Ten Commandments (1889) were the direct outcome of his earnest care for the welfare of its students, and were enthusiastically received. Dr. S. Weir Mitchell, LL. D., has not only professional fame as a writer on medical topics, but ranges afield as novelist and poet of an equal repute. Horace Howard Furness, LL. D., is as widely known in the literary world as the student of Shakespeare, and his variorum edition of the plays is the serious work of his later years, while diligently watching over the library and the English Department of the College. The Hon. Samuel W. Pennypacker at one time edits supreme court reports, at another is the historical writer on the German side of Pennsylvania's history, or the discoverer and exploiter of rare treasures of her early literature. It is well that the governing and teaching bodies should have this bond of union in a literary fellowship which centers in the University.

To go to the other extreme, it is a curious and noteworthy fact that the celebrated Lindley Murray, the author of the English Grammar (1797), English Exercises, and other educational works of supreme importance in their day, got his first acquaintance with grammar on the hard benches of the Academy here, somewhere about 1752. Of course it was through the medium of Latin, and it was his mission to make it popularly known that the science could be applied to the native tongue. But our bibliography must, of course, be chiefly occupied with the productions of the teaching staff, and these have been so numerous that only the merest outline can be given. The Rev. Dr. William Smith, first provost, began his literary career with *A Philosophical Meditation and Address to the Supreme Being*, London, 1754, and the pen was thenceforward a constant weapon in his active and aggressive life; and while not the author of any extensive work, he published numerous articles, literary, political, and religious, a full account of which is given in his life by his grandson, Horace W. Smith (Philadelphia, 1880). For some years there was only a faculty of arts, and the writings from that source are of course literary and philosophical. David James Dove, a tutor of the Academy, was a leading poet of the day. Provost John Ewing, D. D., published *Lectures on Natural Philosophy* in 1809, and was a frequent contributor to the proceedings of the Philosophical Society. David Rittenhouse, sometime vice-provost, published an *Oration on Astronomy* in 1775, but wrought more than he wrote, and is famous chiefly for his achievements. Henry Reed, gentlest and most beloved

of professors, was the author of *Lectures on English Literature* (1855), *Lectures on English History*, as illustrated by Shakespeare's plays, *Lectures on Tragic Poetry*, which were published after his death. Henry Vethake, LL. D., published *The Principles of Political Economy* (1838), and edited *McCulloch's Commercial Dictionary*. Henry Coppée, LL. D., was the author of *Elements of Logic* (1857), *Elements of Rhetoric* (1857), *English and American Poets* (1858). Prof. John Bach McMaster is well known through his great work, *The History of the People of the United States*; and Prof. Albert S. Bolles through his *Financial History of the United States*. Prof. John G. R. McElroy's work, *The Structure of English Prose* (1885), has become a valued text-book in many institutions. Prof. Daniel G. Brinton's works on Archaeology, especially American, and on American Languages are unique and numerous. Prof. Hugh A. Clarke has published a successful grand oratorio, *Jerusalem* (1890). Prof. George S. Fullerton's *Conception of the Infinite and Plain Argument for God* have been well received. Prof. Robert Ellis Thompson writes chiefly on Political Economy, but has recently completed *The Latin Hymn Writers and their Hymns*, begun by S. W. Duffield. Prof. Seidensticker has published several works on the early German settlers in Pennsylvania. Prof. Francis N. Thorpe is the author of the *Government of the People of the United States* (1889), and of many historical monographs. But these brief notices are unjust. There is scarcely a member of the faculty who is not an active producer, and, as will be shown by some later statistics, the titles of their annual work in monographs would be impossible of enumeration here. The advent of the professional schools greatly increased the flood of publications from the University. First of these was the Medical School, and its literature is simply enormous. We will quote a few of the larger contributions, taken almost at random:

JOHN MORGAN, M. D., first medical professor. *De Puris Confectione*, and several other tracts.

Prof. Benjamin Rush, M. D. *Medical Inquiries and Observations*, 5 volumes.

Prof. Benjamin Smith Barton, M. D. *Elements of Botany* (1805).

Prof. William P. C. Barton. *Medical Botany of the United States*, 2 volumes (1817); *Flora of North America*, 3 volumes (1821).

Prof. James Woodhouse. *Dissertation on the Chemical and Medical Properties of the Persimmon Tree*; *Young Chemist's Pocket Companion* (1792).

Prof. John Syng Dorsey. *Elements of Surgery*, 2 volumes (1813).

Prof. William Potts Dewees. *System of Midwifery*; *Practice of Medicine*.

Prof. William E. Horner. *Special Anatomy and Histology*. *United States Dissector*.

Prof. Nathaniel Chapman. *Elements of Therapeutics and Materia Medica*.

Prof. George B. Wood. Dispensatory of the United States (issued first in 1833); Practice of Medicine, 2 volumes (1847); Therapeutics and Pharmacology, 2 volumes (1856).

Prof. Henry H. Smith. Minor Surgery (1843); Anatomical Atlas (1844); System of Operative Surgery (1852); Principles and Practice of Surgery (1863).

Prof. Alfred Stillé. Therapeutics and Materia Medica.

Prof. Henry Hartshorne. Essentials of the Principles and Practice of Medicine.

Prof. Joseph Leidy. Human Anatomy.

Prof. Harrison Allen. A system of Human Anatomy.

Prof. William Pepper. A System of Practical Medicine; Diseases of Children.

Prof. John Ashhurst, jr. Principles and Practice of Surgery.

Prof. William F. Norris. A Text Book of Ophthalmology.

Prof. Hugh L. Hodge. On Diseases Peculiar to Women.

Prof. Horatio C. Wood. Therapeutics, its Principles and Practice.

Prof. Edward T. Bruen. Physical Diagnosis of Heart and Lungs.

Prof. James Tyson. Cell Doctrine. Examination of Urine.

Prof. John J. Reese. Medical Jurisprudence and Toxicology.

Prof. William Goodell. Lessons in Gynecology.

Prof. Theodore Wormley. The Micro-Chemistry of Poisons.

From the law faculty such contributions as these:

Prof. George Sharswood. Professional Ethics; Popular Lectures on Common Law. Edition of Blackstone's Commentaries.

Prof. J. I. Clark Hare. American Leading Cases in Law; Lectures on Law of Contracts. Lectures on Constitutional Law.

Prof. James Parsons. An Exposition of the Principles of Partnership.

Prof. C. Stuart Patterson. The United States and the States under the Constitution.

Prof. George Tucker Bispham. Treatise on the Principles of Equity.

The School of Biology covers a most productive field, and while no large works have been produced, the contributions to periodical literature and proceedings of scientific societies by such writers as Prof. John A. Ryder, Joseph T. Rothrock, William P. Wilson, and Joseph Leidy amount to enough to make many large volumes. It will suffice to say that the titles of Dr. Joseph Leidy's contributions of this kind during four years were found to number 70, many of them involving considerable research. Indeed, the only way in which the literary activity of the professional staff can be even approximately shown in such a chapter as this is to state that during four and a half years 116 authors were reported as having published books, monographs, or articles to the number of 1,542 titles. It is known that even this large showing is incomplete, several authors having failed to respond to a request for a report of their literary work. But the returns are sufficient to show what intense activity in research, in

study, and in writing prevails in a body of men, scarcely one of whom is not also engaged in direct teaching and other professional work.

Altogether apart from the productions referred to in the above sketch, and even more directly products of the University, are two remarkable works. One is the Preliminary Report of the Committee to Investigate Modern Spiritualism, edited by Horace Howard Furness, chairman. The committee was appointed in compliance with the terms of the gift of large endowment by the late Henry Seybert, and its proceedings are of extreme interest. The other is the great work on Animal Locomotion, by Eadweard Muybridge, who prosecuted his investigations under the auspices and on the premises of the University, producing under conditions of the most scientific accuracy instantaneous photographs of men, women, and animals while in ordinary or rapid motion. The work consists of over 700 large plates, some of them with from twelve to twenty-four simultaneous pictures of the same act from different points of view, others of consecutive pictures at indefinitely brief intervals. The work has excited much attention in this country and abroad, and reflects much credit on the University.

"The Department of the Science of Music," writes Dr. H. A. Clarke, the director of the department, "was established by the trustees February 2, 1875. Although chairs of music have been in existence for many years in the English universities, this was the first to be established in the United States, an example which was followed shortly afterward by Harvard. The duties attached to this chair in the University of Pennsylvania differ so widely from those of the corresponding chair in the English universities as to make it a new departure in collegiate instruction. In the English university the duties of the professor are limited chiefly to the examination of candidates for degrees who have received their technical training elsewhere. In the University of Pennsylvania this technical training is the main duty of the professor. Being largely of the nature of an experiment, the course in music was first established as an independent department, but the success which attended it was such that in 1882 the trustees attached it to the Department of Philosophy. The course of instruction, which at the inception of the department was confined to harmony and counterpoint, extending through two years, was in 1886 increased to three years and made to include form and orchestration. The difference between the duties of this chair and those of the English universities has caused some modifications in the granting of degrees. This change was made necessary by the fact that many students who master the course of instruction thoroughly and are well qualified to teach do not possess enough of the inventive faculty to produce original compositions. To such students the university grants a certificate, reserving the bachelor's degree for those who, in addition to technical knowledge, are gifted with sufficient originality to compose the prescribed thesis. A change was also made in the manner of granting the doctor's degree.

In the English universities this degree is granted to bachelors who undergo a further examination and write the prescribed thesis, the difference between the examinations for Mus. B. and Mus. D. being so slight that the latter is deprived of much of its distinction. The University of Pennsylvania adopted the rule that the degree of Mus. D. should be reserved for musicians who have distinguished themselves as composers of important works, thus enhancing the value of the degree. Being attached to the Department of Philosophy, the course in music may be taken as one of the three studies required for the degree of Ph. D."

In 1886 the undergraduates of the University brought out the Greek play, Aristophanes' *Acharnians*, for which Dr. Clarke wrote the music. This successful revival of a classic drama was one of the academic events of the day.



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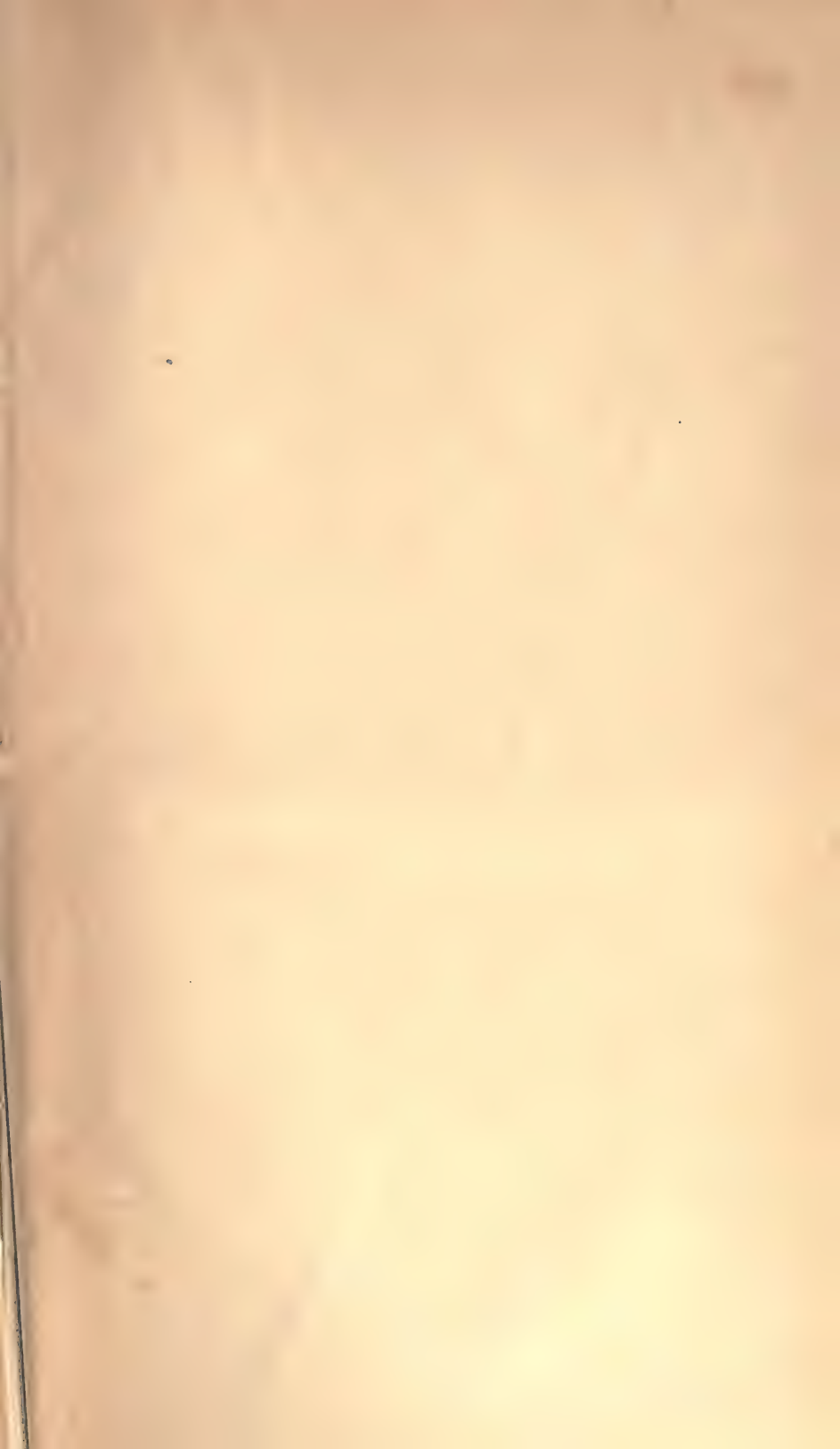
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